PLATO AND THE 'PHILOSOPHY OF THE ITALIANS'.
A DISCUSSION OF ARISTOTLE METAPHYSICS A.vi.1.

Μετὰ δὲ τὰς εἰρημένας φιλοσοφίας ἡ Πλάτωνος ἐπεγένετο πραγματεία, τὰ μὲν πολλὰ τούτοις ἀκολουθοῦσα, τὰ δὲ καὶ ἴδια παρὰ τὴν τῶν Ἰταλικῶν ἔχουσα φιλοσοφίαν.

"After the systems we have named came the philosophy of Plato, which in most respects followed these thinkers, but had peculiarities that distinguished it from the philosophy of the Italians."

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view. This he supports by two main references: a) Mathematics, he says,[1] is pre-natal divine knowledge by which man reaches the 'upper sun', in which he clearly refers to the quotation from Pindar in Meno 81B, and b) the Kinship of Nature is vital to every complete statement of Anamnesis, as in Meno 81CD and Phaedo 70D.[2] These are unfortunate references since a) the quotation from Pindar is definitely Orphic and not Pythagorean. This is stated by Stewart,[3] and explained by Guthrie[4] as Opphic in that the reason given for the sojourn in Hades is to give satisfaction to the Queen of the Underworld for the original sin of the Titans (who slew Dionysus-Zagreus), and this is followed by Miss Freeman.[5] Again, b) the account of the doctrine of rebirth in Meno 81CD is given as a λόγος of priests and priestesses, 81A, which, says Gruppe[6], refers to Orphism[7] - and we certainly have no knowledge of Pythagorean priests, much less of priestesses. The other reference, Phaedo 70D, has nothing to do with Anamnesis, and in any case Stewart[3] thinks the'ancient logos', which is Plato's source here, is Orphic[8]. (Luce's[9] rejection of Burnet's acsription of the word λόγος in Phaedo 67C to Orphism does not really affect its status in 70C). Indeed, while Plato may have felt some corroboration for his doctrine of Anamnesis and Transmigration in the teachings of Pythagoras; his original source seems to have been Orphism. So Stewart[10]: "Dieterich notes the agreement with the Golden Tablets of Petelia and Thurii in the divine origin of the soul, the painful cycle of birth, the abyss of guilt on account of old sins, the entrance to the Field of Blessedness, Lethe on the left, and Anamnesis as a philosophical doctrine based on the concret figure of Mnemosyne."

ii) Mathematics: While I believe it is a mistake to regard mathematics as the exclusive possession of the Pythagoreans, for there are several expressions in the Meno[11] that imply that at least the mathematics there expounded was taught by sophists or by 'geometers', we seem to be on surer ground when Field[12] says, Pythagoream mathematics undoubtedly impressed Plato. The precise nature of this Pythagorean influence has been hinted at by Milhaud[13], that "Plato followed the Pythagoreans.....in giving Number an intrinsic value and a mysterious significance." But more valuable on account of his greater detail is Cameron[14] that "There are three manifestations of Pythagorean Number in Plato: a) the mystical attitude of man praising the power of Number in the affairs of this world, b) the attitude of striving to establish the absolute truth of the

1. Op. cit. 70. 2. Op. cit. 76. 3. The Myths of Plato 67-9.
4. Orpheus and Greek Religion 165.
5. The Pre-Socratic Philosophers. A Companion to Diels 14-15.
6. Griechische Mythologie und Religionsgeschichte II 1029.
7. But Pythagorean according to Dodds, op. cit. 225 note 5.
8. Heraclitean as Dodds correctly states, op. cit. 150 & 152.
9. Classical Review LXV-N.S.1. 66-7. 10. Op. cit. 158 note 2.
11. Meno 85B, 86E. 12 Plato and his Contemporaries 187.
13. Les Philosophes Géomètres de la Grèce 309. 14. Op. cit. 68.

mystery of geometrical proof, and c) the theory of the Kinship of Nature.[1]

iii) Physics, etc.: While Taylor[2] believes that the Timaeus is largely an exposition of the system of Timaeus of Locri, a Pythagorean, it is now, I believe, generally agreed that the doctrine is Plato's own, but, while the tale that Plato plagiarised the book or books of Philolaus is undoubtedly an invention, probably of Aristoxenus'[3], it is reasonable to suppose that Plato adapted much of the science of his day. Thus, as Frank[4] says, the mathematics, astronomy and physics[5] are those of Archytas, and the medical theory that of Philistion. By physics Frank doubtless refers to the construction of the Four Roots from triangles, which are put together in the shape of the regular solids.[6] So Miss Freeman[7]: "Perhaps the Pythagoreans knew the five regular solids without perfecting their construction. Plato probably took over a Pythagorean suggestion connecting them with the cosmic elements, but invented the account of transmutation and construction from triangles." But this, she says, is not certain.

iv) Education: Adam[8] rightly points out that in Republic 530E[9] Plato confesses his debt in drawing up his scheme of education to the Pythagoreans.

B. Metaphysical.

Turning now to the various ascriptions by modern commentators of Pythagorean influence in the metaphysical field, these views can be roughly grouped under three heads according to the emphasis placed by their upholders on one of the three modes attributed by Aristotle to the Pythagoreans, purporting to explain the relationship subsisting between things and Numbers.

i) Things exist by imitation[10] of Numbers: The extreme form of this interpretation of Pythagorean influence on Plato is that of Burnet, who was followed by Taylor and others. The key-note of this theory is that the Platonic dialogues are strictly historical, and this is corroborated by stressing one or two pointsfrom independent evidence, among which is Aristotle's testimony in Metaphysics A.vi, that, according to the Pythagoreans, sensible things exist by imitation of Numbers.[11] For convenience of discussion, this theory can be divided into three phases, as follows:

1. I disagree in respect of c), but this cannot be gone into here.
2. See his Commentary on Plato's Timaeus 31-2 and 171, and esp. his Plato, the Man and his Work 436. 3. So Burnet, Early Greek Philosophy 323-5, and Field, Plato and his Contemporaries 176.
4. Plato und die sogenannten Pythagoreer 128 129.
5. Cp. Lewis Campbell, Encyclopedia Britannica (Eleventh Edition) XXI.809:"Plato's intercourse with Archytas and others led him to include a theory of the cosmos in his purview."
6. Cp. Conacher, Phillsophy XVIII.103:"Pythagorean influence is the introduction of mathematics, i.e. number and measurement, in the conception of transmutation in quantative terms (sc. in Timaeus)".
7. Op. cit. 223. 8. The Republic of Plato II.164.
9. This should be Republic 530D! 10. μίμησις.
11. Metaphysics 987b11-12.

a) The Pythagoreans held a theory of Ideas in which the Ideas were confined to mathematical concepts, separatefrom sensible things, which existed by imitation of them. That mathematical concepts are Ideas[1] is shown by Burnet[2] firstly from the use of the word εἶδος to denote the pattern in which the dots of figurate numbers like :: are arranged,[3] secondly from the alleged implication of separateness in the regular Pythagorean formula of things existing by imitation of Numbers,[4] and thirdly,from the assumption of the historicity of the dialogues, that "Plato's real philosophy is based on a Pythagorean doctrine of Ideas, reflected in the dialogues"[5], or, as Taylor[6] puts it, since the relation of things to Ideas in the Timaeus is μίμησις , the standing Pythagorean word,[7] and since Timaeus is the only person besides Socrates to speak of εἴδη at all, the Ideas are Pythagorean. Each of these three points has been challenged. Gillespie[8] has shown that, while the Pythagoreans used the word εἶδος, it did not influence later development, but was a collateral growth. Plato's word, and hence the meaning it has of 'Idea', comes from science and not from Pythagorean mathematics. Ross[9] commends his article, adding[10] that we do not know that the Pythagoreans called number-patterns εἴδη at the time of Plato's youth. In the second place, Ross points out[11] that Aristotle did not mean that the Pythagoreans thought things imitated separately existing Numbers, and Grube[12] has refuted the notion that Ideas were a Pythagorean doctrine at all. Finally, Field [13] has made it clear that Plato alone is responsible for the invention of Ideas, and his further remarks about the historicity of the dialogues will be referred to presently.

b) Socrates was a Pythagorean, but differed from the regular school by extending Ideas to all concepts and by making Ideas immanent and sensible things to exist by participation in them.[14] That Socrates was a Pythagorean rests chiefly on his use of "we" in addressing certain Pythagoreans in the dialogues, [15] and the rest of this part of Burnet's theory takes the Platonic picture of Socrates as strictly historical.[16] But Field [17] has shown that there is no evidence in

1. εἴδη 2. Greek Philosophy 52. 3. Cp. Classical Quarterly XXXI.142. 4. Burnet, Greek Philosophy 89 & 166, and Plato's Phaedo 33 ad 65D; cp. Classical Review X.92-5 and Cherniss, Aristotle's Criticism of Pre-Socratic Phillsophy 392: "Μίμησις involves separation". 5. Burnet, Plato's Phaedo xlvi.
6. Commentary on Plato's Timaeus 33 & 335 ad 51B.
7. But a ἄπαξ λεγόμενον according to Cherniss, Aristotle's Criticism of Plato 193. 8. Classical Quarterly VI.202-3 & 199.
9. Aristotle's Metaphysics I.159 ad 987b8.
10. Plato's Theory of Ideas 14.
11. Aristotle's Metaphysics I.163 ad 987b11.
12. Plato's Thought 291-4, cited by Cherniss, op. cit. 186 note 108.
13. Classical Quarterly XVII.120.
14. Burnet, Greek Philosophy 154-165, cp.Classical Quarterly XX.76-7.
15. Burnet, Plato's Phaedo 33 ad 65D.
16. Classical Review XXV.251, cp. Taylor, op. cit. 28.
17. Classical Quarterly XIX.13.

the post-Aristotelian tradition that the dialogues give an historical picture of Socrates, and next to none to connect Socrates with the Pythagoreans; Mrs Adam[1] and Miss Williams[2] have countered the theory that the dialogues present an historical picture of Socrates; and Ross[3] sums up that it is no longer necessary to argue against the view that the Theory of Ideas is Socratic.

c) Burnet's theory concludes that Plato adopted these Socratic Ideas of Pythagorean provenance, but made them separate.[4] That Plato's Ideas were separate from sensibles and developed out of the Socratic DEFINITIONS is generally accepted, and enough has been said above against the notion of Socratico-Pythagorean Ideas.

But there is a modification of this theory that abandons the untenable thesis of Pythagorean Ideas and the alleged historicity of the Platonic figure of Socrates, proceeding direct from Pythagorean Numbers to Platonic Ideas thus: "From the mystical Pythagorean school Plato derived the conception of the mimetic relationship between the individual and the universal of sharing in a common formula..... Flux suggested separation."[5] This is more clearly expressed by Ritchie,[6] that "Aristotle ascribes the non-Socratic element of separation to the Pythagoreans, Metaphysics 987a30, b10, and their doctrine of the relation of phenomena to Numbers.....For the Pythagoreans said that things imitate Numbers....But Plato saw what the Pythagoreans had not seen - that Numbers and Figures are abstract and exist apart from things." This is probably what Cornford[7] is referring to when he says that "One root of the assertion of Forms is Pythagorean Numbers as the Being of things - so μίμησις - μέθεξις . This makes the Forms entities having a separate existence in the intelligible world where they replace the Pythagorean Numbers as the reality which appearances represent."[8] This has the advantage over Burnet's thesis of linking the Pythagorean influence direct with Plato instead of via Socrates, and of adopting the more usual view that the Theory of Ideas was Plato's own, but suffers from two defects: firstly, there is no evidence in the dialogues of any Pythagorean influence having contributed to the hypostatisation of the Ideas,[9] nor does Aristotle, despite Ritchie's reference, suggest it, but on the contrary it is difficult to understand how immanent Numbers - for this immanence is explicit in Ritchie above, and in any case this is just the point where Plato differed from the Pythagoreans - could have led Plato to the

1. Classical Quarterly XII.121-138, esp. 125, and Ross, Aristotle's Metaphysics II.420 ad 1078b11. 2. Classical Review XXVI.161.
3. Plato's Theory of Ideas 157. 4. Taylor, Commentary on Plato's Timaeus 32. 5. Aristotle's Metaphysics, Loeb Classical Library, xxi. 6. Plato 49-51. 7. Plato's Theory of Knowledge 9-10.
8. Cp. Robin, Greek Thought 203.
9. Cp Ross, Plato's Theory of Ideas 14:"Aristotle does not suggest that number-patterns had anything to do with the inception of the Theory of Ideas, and there is little in the dialogues to suggest it," and 161-2 to the same effect.

conception of transcendental Ideas.

Hence, while Aristotle bears witness to the resemblance between Pythagorean μίμησις and Platonic μέθεξις, this can hardly mean that Pythagoreanism influenced the inception of the Theory of Ideas, and one can only conclude with Ross[1] that the Early Theory merely resembled Pythagoreanism in the one point of Participation, as Aristotle says.[2]

ii) Things are Numbers: Two opponents of Burnet, who rightly take Pythagorean Numbers as not separate from sensible things, and who consequently make Plato himself responsible for the separation of Ideas, fasten upon the best attested Pythagorean tenet, that all things are Numbers, in order to explain Aristotle's testimony that Plato later identified the Ideas with Numbers. Thus, Rogers[3] says that Plato took the non-metaphysical definitions of Socrates and turned them into a realm of entities, and later identified them with Pythagorean Numbers. Also Field[4] :"In the final stage of his thought Plato identified Forms with Numbers; indications of this view had already appeared in the attempt to attain scientific knowledge of the world involved in the expression of it in mathematical terms. Plato took over this general idea from the Pythagoreans, but corrected their saying that Numbers, which constitute intelligible reality, were in things; he said that the Forms of things were Numbers, i.e. the really real is what is expressible in mathematical terms." I pass over the apparent contradiction in Field's view that this alleged LATE Pythagorising was also one of the influences determining Plato's CONCEPTION of Ideas,[5] and being unaware of any counter in the works of modern commentators, ask on my own behalf, How can one use Aristotle's evidence of alleged Pythagorean influence, and yet contradict Aristotle in the details of that evidence? For Aristotle does not mention any resemblance between Platonism and Pythagoreanism in just this point of the identification of real entities with Numbers![6]

iii) The elements of Numbers are the elements of all things: In my opinion, the correct line to take in regard to Aristotle's evidence concerning the relationship between Plato and the Pythagoreans is to emphasise this Pythagorean tenet, because, as will be shown ad loc., it is in this respect especially that Aristotle sees a resemblance between the two philosophies here in question.[7] Along these lines, there are two different theses to consider, that of Cornford and that more recently adopted by Sir David Ross.

1. Aristotle's Metaphysics I.xlv, and Plato's Theory of Ideas 161.
2. Metaphysics 987b11-12. 3. The Socratic Problem 144.
4. The Philosophy of Plato 134-5. Cf. op. cit. 43: "So Plato reached the conception of Ideas via mathematics and moral ideals."
6. Cp. Metaphysics 987b27-8 and 30.
7. Cp. Pater, Plato and Platonism 52: "Plato's Theory of Ideas is an effort to enforce Pythagorean πέρας upon τὸ ἄπειρον."

In the words of Tate,[1] Cornford[2] shows that the Parmenides establishes as against Eleaticism an ontology which is the modification of the Pythagorean doctrine that sensibles, composed of Limit and Unlimited, are evolved through Number and Figure from the One. Something vaguely similar to this, but referring to a later dialogue, the Philebus, is stated by Taylor[3]:"Nothing like Aristotle's One and the Great and Small is found in the Timaeus, but something like it is found in the Philebus, with Pythagorean categories instead of Platonic. But it is just that the One is not the first blend of Limit and Unlimited, but one of the ultimate categories that distnguishes Plato from the Pythagoreans." Here it is the derivation of sensibles that resembles Pythagoreanism, and Ross agrees with this, but goes even further. In the first place he confines the main resemblance between Platonism and Pythagoreanism to the later Theory of Idea-Numbers, but thinks that this was only a resemblance, and that Aristotle did not mean to suggest that the one theory was derived from the other.[4] And yet he seems to me to contradict this when he says[5] that Pythagorean INFLUENCE is discernible in the composition of sensibles in the Philebus from the Limit and Unlimited. However, this he connects with Metaphysics A.vi by arguing that Plato later found Numbers to presuppose the same two elements into which he had analysed sensible phenomena in the Philebus,[6] and apparently the bridge between Numbers and phenomena is to be found in the Ideas, since the Ideas had " a formal element which was a Number and a material element in which the Number was embodied."[7] This interpretation of the resemblance between the two philosophies, as depending on the construction of Numbers, Ideas and sensibles from elements, is brought into connection with that other phase of Pythagoreanism touched upon above, where things imitate Numbers, for, he says,[8] Plato's assignment of Numbers to the Ideas is on a par with the Pythagorean assignment of the number four to Justice. We might observe, however, that Cherniss[9] denies both that the Pythagoreans ever maintained that the elements of Numbers were the elements of things, and, as mentioned above, that things imitate Numbers.[10]

To sum up, while there seems to have been Pythagorean influence in Plato's reverence for Number, his physics, his scheme of education, and possibly his doctrine of Reminiscence, it is not relevant to a discussion of Metaphysics A.vi.1 to deal with these aspects of alleged Pythagorean influence, because the relationship between

1. Classical Review LV.77. 2. See Plato and Parmenides 138-9 & 245. 3. A Commentary on Plato's Timaeus 31-2.
4. Plato's Theory of Ideas 161. 5. Op. cit. 162.
6. Op. cit. 184. 7. Op. cit. 218. 8. Op. cit. 220.
9. Aristotle's Criticism of Pre-Socratic Philosophy 390.
10. Op. cit. 392.

Platonism and Pythagoreanism there noted by Aristotle is confined to metaphysical doctrines. In respect of these, the above resumé of modern views indicates that the discussion will centre around three modes of the relationship between sensible things and Numbers which were maintained by the Pythagoreans, namely, i) that things imitate Numbers, ii) that things are Numbers, iii) that the elements of Numbers are the elements of all things, and while the central problem is the discussion of the question in which of these respects Platonism resembled Pythagoreanism, it will be further necessary to determine what the Pythagorean doctrines actually were. For it has been seen that Burnet ascribed to the Pythagoreans a theory of Ideas, which others, however, have refuted; that Ritchie ascribed to them the doctrine that things imitate Numbers which do not exist apart from those things, whereas Cherniss asserts that Imitation involves separation; that some make much of this Imitation and of the composition of things and Numbers from elements, while others deny that the Pythagoreans ever held either of these tenets. Hence, before it is possible to determine the nature of the relationship asserted in Metaphysics A.vi.1 and whether thiswas influence or mere chance resemblance, the nature of Pythagoreanism itself must be ascertained.

2. Pythagoreanism.

We leave it for the main body of this work to go into the details of Pythagoreanism, the aim here being only to set out the barest outlines of its various interpretations. These can be grouped according to whether it is regarded as a religious or as a scientific sect, and in the latter case whether its teachings are homogeneous or can be divided into successive schools. It might be expected that some reference should be made, in dealing with the religious side of Pythagoreanism, to its relationship to Orphism, but, as pointed out above, the religious side of Pythagoreanism is really irrelevant to this dissertation, and it is only for the sake of some sort of completeness that it is here mentioned at all.

i) Pythagoreanism as a religious sect only: Frank is to my knowledge the only author who has denied that the Pythagoreans, from first to last, taught any science or mathematics whatsoever.[1] According to him, Republic 600B shows that Pythagoras had nothing to do with science, but was only a religico-ethical teacher with nothing but the doctrine of Transmigration and Orphico-religious customs and views.[2] Further, the independent evidence[3] reveals nothing of mathematics or science, only religious and ethical teachings.[4] And

1. Cameron in his work The Pythagorean Background of the Theory of Recollection is similar: The teachings of Pythagoras are wholly religious, centering around Transmigration, Immortality and the Kinship of Nature (p.16), and professing recollected knowledge of previous lives (p.21), which wisdom, achieved by observation, is called ἱστορίη (p.23), but he admits that later Pythagoreans transformed this Number-magic into mathematics (p.27).
2. Plato und die sogenannten Pythagoreer 67.
3, Diels 11B7, 12B40 & 129, 21B129, 25B4. 4. Op. cit. note 166.

what Plato indicates for Philolaus is throughout Orphic - no trace of any concern with mathematics or science.[1] Nevertheless he allows isolated thoughts like All is Number, and Bodies of Points, to have been held,[2] but insists that this was no more than a Number-mysticism[3] - a pre-scientific mathematics;[4] for it was impossible that in the VI century the Pythagoreans could have had any quantitative conception of reality.[5] What, then, becomes of the body of evidence for mathematics and science usually ascribed to the Pythagoreans? This is all relegated to Archytas, who was not really a Pythagorean but, in accordance with the literary convention of his day, ascribed his discoveries to Pythagoras, and so is referred to by Aristotle as a "so-called Pythagorean".[6] Some of Frank's arguments[7] in support of his thesis have been ably countered by Cherniss.[8]

Against Frank it can be urged that the silence of Republic 600B concerning Pythagorean mathematics is no argument, since the reference specifically concerns his Way of Life, and Miss Freeman,[9] making a closer analysis than Frank of the independent evidence, has shown that it is evidence that Pythagoras was in fact known for his learning, so that he was famous as a scientist as well as a religious teacher. Let us, then, pass by the many interpretations of his religious doctrines - which indeed all give much the same picture - and turn to his scientific teachings alone.

ii) One Pythagorean school from first to last: There are only two views which fall under this heading, or perhaps only one, since Frank's alleged "so-called Pythagoreanism" is not Pythagoreanism at all. The beliefs which he ascribes to this school, briefly, are that they held sensible qualities to be subjective, the Real being Space filled with motions. The ultimate element of Matter is the point, and the line is the fluxion of the point, the plane of the line, and the solid of the plane.[10] But Raven[11] seems to be correct in setting this doctrine of the line as the fluxion of a point as late - contemporary with the Platonists.

Cherniss[12] takes the one and only Pythagorean school to centre around the tenet that Things are Numbers, i.e. bodies consist of aggregates of points having position, and that this is the butt of Zeno's attack. The other tenets that Aristotle ascribes to the Pythagoreans, viz. that things are derived from elements and that things imitate Numbers, are incompatible with the first and are to be dismissed as Aristotle's own invention.

1. Op. cit. 68. 2. Op. cit. 135. 3. Op. cit. 75.
4. Op. cit. 79. 5. Op. cit. 71-2, cp. 220.
6. Op. cit. 69-75. 7. Op. cit. 138.
8. Aristotle's Criticism of Pre-Socratic Philosophy 395-6.
9. The Pre-Socratic Philosophers. A Companion to Diels 76.
10. Frank, op. cit. 102 & 125.
11. Pythagoreans and Eleatics 108-9. 12. Op. cit. 387-392.

Cherniss[1] is probably correct in insisting that these three modes of the existence of sensibles cannot belong to a single theory, but this does not seem to me to be sufficient reason for summarily dismissing two of them. The inconsistency could as well be explained by assigning them to different periods, and indeed one might ask Cherniss whether Pythagoreanism might not have undergone a change after Zeno had made it the butt of his attack. As Miss Freeman[2] says:"When Aristotle's references are collected together, variant opinions among the Pythagoreans emerge, and it is not possible to gather what groups are meant or to what times the differences are to be assigned." But some commentators, to which we now turn, have found a basis on which to make a distinction between earlier and later Pythagorean schools - the Eleatic criticism of Pythagoreanism.

iii) Three Pythagorean schools: Cornford rightly adopts the position that the Eleatic criticism shows what the Pythagoreans held at the time of that criticism, so that a distinction can be made among the miscellaneous tenets ascribed to the Pythagoreans as to which were before Parmenides, which were before Zeno, and which are compatible with that sort of change in their doctrines which would obviate that criticism. On this basis he distinguishes three successive schools. 1. The Pre-Parmenidean school. This has a monistic inspiration with a dualistic system of nature.[3] From the One emerge two opposites - Limit and Unlimited - the latter being Air-Void outside the universe.[4] This view he characterises by explaining the existence of sensibles as Imitation, that is, the relation of many analogous parts to the whole, as in Bacchic inspiration.[5] Against this Parmenides rebelled: two Opposites cannot comefrom the One, and what is not Being (viz. the Air-Void) cannot exist at all.[4] 2. The Pre-Zenonic school. The answer to Parmenides was to abandon the derivation of the two Opposites from the One, and to posit an indefinite number of 'atoms', i.e. unit-points having magnitude, as ultimate. This he calls Number-Atomism, and this is what Zeno attacked.[6] 3. The Post-Zenonic school. The answer to Zeno was to give up discrete magnitude, which led to the later view[7] of the point flowing into the line and so on up to the solid, together with the identification of the regular solids with Empedocles' Four Roots.[8] This latter Cornford[9] had already accepted as a doctrine of Philolaus'.

1. Op. cit. 386. 2. Op, cit. 246.
3. Classical Quarterly XVI.137. 4. Plato and Parmenides 28 &40-1.
5. Classical Quarterly XVI.143, which Ross takes to mean that things exhibit numerical relations, see Aristotle's Metaphysics I.163 ad 987b11. 6. Classical Quarterly XVI.137 and Plato and Parmenides 57-60. 7. But see page 9 note 11 above.
8. Plato and Parmenides 12-16. 9. Classical Quarterly XVI.138.

Raven has criticised Cornford, firstly[1] for his derivation in the original school of two Opposites from the One, pointing out that Aristotle does not say this, but the contrary, that the One is composed of the two Opposites, and secondly[2] for interpreting the two tenets of Metaphysics 1092b8-22 - Number as matter and as formula - as referring to two successive schools, whereas they are implicitly contemporaneous, the two tenets being compatible when referred to different orders of things. Hence the Pre-Parmenidean and Pre-Zenonic schools are one and the same, but in any case there can be no questio of Number-Atomism.[3]

Cornford's arrangement seems to have been followed by Miss Freeman and Robin, although there are differences in detail in their interpretations. Thus Miss Freeman[4] states that "Original is the conception of Numbers and Harmonies as the elements of all things,... .... the construction of the five regular solids and the discovery of the Irrational." With this apparently goes Imitation, since she quotes[5] Ross' commendation of Cornford's having placed this in the VI century and the tenet, Things are Numbers, in the V. This latter refers to 'Number-Atomism', which she calls the majority view,[6] that the Monad limits Space and the Dyad is the possibility of the repetition of the Monad when multiplied in Space. Given, then, corporeal monads in Space, they plotted out different forms, from the Monad and the Dyad coming Numbers, from the Numbers dots, as she calls them, from dots lines, etc., until the regular solids were identified with the Empedoclean Roots - which combines Cornford's Number-Atomism with the doctrine which he ascribes to Philolaus. Hence, she is necessarily silent as to what came afterwards unless it is the remaining conception of the nature of things as expressible by ratios.

Robin[7] takes the reverence for Numbers and Harmony, and the elements of Numbers, as original, together with Numbers as patterns imitated without being separate, although he allows the possibility that this last belongs to "the younger Pythagoreans". To the second generation (which seems to mean between Parmenides and Zeno) belongs the Table of Opposites listed by Aristotle,[8] and Number conceived in extension - by which he seems to refer to 'Number-Atomism'. He is silent in respect of later developments, which might be due to his having written before Conford's Plato and Parmenides appeared, for only in this work did Cornford deal with the post-Zenonic school.

1. Pythagoreans and Eleatics 22. 2. Op. cit. 51-61.
3. Op.cit. 76-7, that Atomism was an answer to Zeno; cp. Frank, Plato und die sogenannten Pythagoreer 220, that Bodies consisting of points can only have been a development of Atomism - which probably goes too far.
4. The Pre-Socratic Philosophers. A Companion to Diels 82.
5. Op. cit. 247 note al. 6. Op. cit. 247-9.
7. Greek Thought 55-8. 8. Metaphysics 986a22-26.

iv) Two Pythagorean Schools: There are differences in the views of those commentators who maintain two Pythagorean schools before Plato, but in respect of the early school most agree on three fundamental tenets: 1. the inhalation by the One of the Void surrounding it, with the result that the One is split up into numerous units;[1] 2. these are points having magnitude;[2] and 3. things are Numbers in the sense that they are composed of aggregates of these unit-points.[3] In this both Raven[4] and Burnet[5] agree, and while their two views have minor points of difference, both can be contrasted with that of Milhaud.[6] It is true that he also agrees that things are Numbers, being composed of unit-points having magnitude, but he differs in two important respects: firstly, in that he takes Numbers as both a material and a formal cause, the latter being that Imitation which means that Number is an external reflection of an internal reality,[7] which conjunction of 'Things are Numbers' and 'Things Imitate Numbers' is based on Metaphysics 986a16-17,[8] whereas Raven[9] refers Imitation to a different class of entities - abstract concepts like Justice - from sensibles which are composed of Numbers themselves, and secondly[10] he places the Table of Opposites of Metaphysics 986a22-26 in the V century, by which he can hardly mean the pre-Zenonic school, whereas Raven[11] refers it to the original theory, which would be better described as VI century.

In respect of the later school Milhaud is silent, except perhaps in regard to the Table of Opposites, as previously mentioned, whereas Burnet bases his interpretation on the fragments of Philolaus and his peculiar view of the Platonic dialogues. (See pages 4-5 above) So he says[12] that the Pythagoreans of Philolaus' school were familiar with Ideas[13] and that Philolaus identified the regular solids with Empedocles' Roots, the triangles of which imitate triangular Numbers,[14] thus making double use of Imitation. As the view that the Pythagoreans held a theory of Ideas is now abandoned, we must turn rather to Raven[15] for a satisfactory account of this school. He uses three tenets as the basis of his thesis: 1. lines are the Continuous bounded by two points without magnitude, triangles by three and tetrahedra by four points; 2. more complicated figures are made up of simpler, so that solids in general are defined by their surfaces (which is how he interprets the procedure ascribed to Eurytus); and 3. the regular solids are identified with the Four Roots by Philolaus, which is corroborated by the fifth Tetractys. Hence, there is one theory that embraces an analogous

1. Pythagoreans and Eleatics 27-28 & 34. 2. Op. cit. 45.
3. Op. cit. 48. 4. Notes 1,2,3 above. 5. Early Greek Philosophy 120 and Greek Philosophy 44. 6. Les Philosophes Géomètres de la Grèce 105-7 and 134 & 138. 7. See above, page 10 note 5. 8. "These thinkers also consider that Number is the principle both as matter for things and as forming both their modifications and their permanent states." 9. Op. cit. 52.
10. Op. cit. 111. 11. Op. cit. 11. 12. Plato's Phaedo xliv.
13. See above, page 4. 14. Greek Philosophy 89.
15. Op. cit. 150-5 and Classical Quarterly N.S.1. 147-8.

interpretation of geometrical magnitudes, of Empedocles' Roots (Philolaus) and the natural species (Eurytus). But he enters upon controversial ground when he alleges that the whole theory is summed up in Metaphysics 1090b5-13, for Bywater[1] asserts that this reference is not Pythagorean, and Cherniss[2], by comparing it with 990a18-22, concludes that it refers to the Platonists.

3. The Later Platonism.

It remains to summarise the various interpretations of the later Platonism - later, since Metaphysics A.vi is mainly concerned with a phase of the Ideal Theory, generally called the Doctrine of Idea-Numbers,[3] which does not occur in the earlier and is so little in evidence in the later dialogues that it has been doubted whether the doctrine was ever really held by Plato, and those commentators who have admitted that Plato did hold it have for that reason universally assigned it to a latest phase of his thought.

Was there a change in Platonism? Some critics, then, deny that there was ever any change in Plato's thought, and accordingly dismiss Aristotle's evidence in Metaphysics A.vi and elsewhere concerning the alleged Doctrine of Idea-Numbers as either a misunderstanding or a misrepresentation of what Plato held. So Shorey[4] insists on the unity of Plato's thought, and dismisses[5] as more than doubtful the Aristotelian and post-Aristotelian tradition of a latest phase of his philosophy. So Bury[6] states that the Idea is one and many in Platonism throughout, and appears only in the late dialogues by accident, and that[7] Aristotle neither understood nor cared to understand Plato. Again, Stewart[8], that a comparison of the Laches and the Sophist does not justify us in assuming a change in doctrine, but only in the subject discussed, while Cherniss[9] lays down as a criterion that Aristotle is to be accepted insofar as he is corroborated by the dialogues, but his evidence concerning Idea-Numbers, which is at variance with these, is to be disregarded since it has its origin in Aristotle's own critical method, and much to the same effect is Ritter,[10] that "Since Plato wrote up to the time of his death, the contention that the latest form of Platonism was given orally must be a fiction - therefore, when Aristotle deviates from the dialogues, we reject him."

1. Journal of Philology I.31. 2. Aristotle's Criticism of Pre-Socratic Philosophy 42 note 161 - but I fail to follow Cherniss' line of reasoning. 3. Cp. Field's identification of Forms and Numbers above on page 6 with note 4, and Ross' assigning Numbers to Ideas above on page 7 with note 8. By Idea-Numbers is meant that connection of Ideas in some way with Numbers as mentioned by Aristotle in Metaphysics 1078b9-12; Ideal Numbers are incomparable numbers in contradistinction to mathematical numbers, whether such are Ideas or not; and Ideas of Number are the Ideas of Twoness, Threeness, etc., as in Phaedo 101BC.
4. What Plato Said 67. 5. Op. cit. 50. 6. Journal of Philology XXIII.181-2. 7. Op. cit. 191. 8. Plato's Doctrine of Ideas 10. 9. The Riddle of the Early Academy 29.
10. The Essence of Plato's Philosophy 31-2.

I cannot, however, believe that this point of view has been sufficiently established, since on the one hand Conacher, Field and others have shown that there is a change in view-point in the later dialogues, as will be mentioned presently, and on the other hand whatever may be Aristotle's shortcomings as a witness the central point in the controversy about the value of his evidence - the alleged doctrine of Idea-Numbers - is corroborated by a wholly independent source, Hermodorus.[1] In fact, as Frank[2] says, the dialogues do not contradict Aristotle but show the system of nature known to Aristotle as the basis of his evidence concerning Idea-Numbers, the ground of that nature.

As the subject of this section is the doctrine of Idea-Numbers, I omit any mention here of the various interpretations of the later Ideasas Categories, Spritual Forces, or Thoughts of God, and cite as an example of the demonstrability of a change in Plato's thought on the evidence of the dialogues alone some of the views that centre around the causality and status of the Ideas. Here the Idea is no longer, as it was in the earlier dialogues, the sole reality, but now the Soul is recognised as really real, and supplements the causality of the Forms - previously the sole causality - by being the cause of motion and of change. So De Lacy[3] distinguishes the later from the earlier Platonism by its allowing motion and change to be real, Soul replacing the causality of the Ideas, as in the Sophist, Philebus and Timaeus. This is interpreted by Conacher[4] as Plato's concern to make a scientific explanation of the transmutation of the 'elements' possible, scientific, because change in quality is now interpreted in quantitative terms. Just what he means, however, by saying that what Aristotle calls the doctrine of Forms and Numbers is the imposition by the Demiurge of Forms and Numbers on the Receptacle, is not clear. To the same line of thought belongs Field,[5] that Plato's thought developed in two main directions: the problem of process, and the nature of the Forms.

Our concern, however, in not with interpretations of the Sophist, Philebus and Timaeus as such, but only with the doctrine of Idea-Numbers, so, taking it that there probably was some sort of change in Platonism, let us turn to the various interpretations of the nature of Idea-Numbers as the most striking aspect of that change, and more directly connected with Pythagorean influence.[6]

i) Ideas are ratios of Numbers: Tredennick states that the formal principle both of Ideas and of things, Unity and the Ideas respectively, are numerical limits - probably based on the Philebus - and this led Plato to describe Ideas as Numbers, or rather as ratios, citing as an example the connection of Line, Plane and

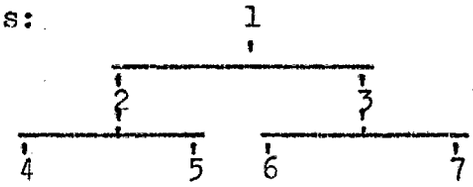
1. Classical Review LXV.29. 2. Platò und die sogenannten Pythagoreer 94. 3. Classical Philology XXXIV.110-2.
4. Phillsophy XVIII.103-4, 109 & 111. 5. The Philosophy of Plato 113-4. 6. Aristotle's Metephysics, Loeb Classical Library Edition, xxiii.

Solid with Two, Three and Four. But how these can be called ratios is not made clear.

More explicit is Field,[1] who gives as instances of that development in the nature of the Forms mentioned above, moral Ideas as the right amount of something, the right proportion between different elements, and 'Horse' as a combination of different elements in a proportion which can be expressed numerically. But this line of interpretation does not seem to me to fit the facts, for even if the evidence of the Philebus concerning the nature of the Limit can be taken as outweighing Aristotle's testimony that the formal principle of Ideas was the One - not a ratio - this interpretation still does not agree with the connection with Numbers which it purports to solve, since the Greeks did not consider ratios to be numbers.[2]

ii) Ideas and Numbers are different entities: A very attractive theory, because it connects Idea-Numbers with the Platonic method of Division, is that put forward some time ago by Becker, and supported in recent times by Brommer. Becker[3] takes a genus as representing 1, its two sub-genera as 2, one of these sub-genera together with the two species of the other as 3, the species of both together as representing 4, and so on, so that, as Brommer[4] makes clear, the essential feature of this theory is that Plato's Ideal Numbers had units, i.e. the units of Ideal Numbers are Ideas. The difficulty in this interpretation, however, is firstly that Numbers are here identified not with Ideas, but with groups of Ideas,[5] and secondly it is almost universally agreed that the characteristic feature of Plato's Ideal Numbers was that they did not have units.[6]

Hence, Stenzel's interpretation is an improvement, since he avoids these two objections. The essence of his view is the parallel origin of Ideas, Numbers and Magnitudes.[7] If I understand him aright,[8] there are three parallel and interconnected diaereses: Not-Being makes possible the division of a genus into sub-genera, and these into species, etc.;[9] this is subsumed under a principle of greater generality - the Dyad - which, by making the One two, gives rise to the diaeretic scheme of integers, thus:



etc., which grounds Dialectics; and Space, in which Becoming takes place, is connected with Number by its subsumption under the Great and Small as a more general term for Extesnion,[10] so that Number is

1. The Philosophy of Plato 136 & 143.
2. See van der Wielen, Die Ideegetallen van Plato 14-5 and 136.
3. Referred to by van der Wielen, op. cit. 233, and Ross, Plato's Theory of Ideas 196-7.
4. Mnemosyne XI.iv.264, 273 & 280-1.
5. So Ross, loc. cit.
6. For example, Cook Wilson, Classical Review XVIII.251, and van der Wielen, op. cit. 88 note, and 89.
7. Zahl und Gestalt 60.
8. Cp. Ross, op. cit. 195: "Stenzel is so vague that it is impossible to see exactly what his theory is".
9. Op. cit. 48-51.
10. Op. cit. 86-88 with 31.

both the symbol of the Ideas arranged as species and genera in the dichotomic scheme, and of the world built up of line, plane and solid.[1] Miss Nicol[2] has elaborated the latter by showing that Plato attempts to solve the problem of continuity by giving the monad position by means of the Dyad as Extension, and then it becomes an Indivisible Line; when this increases into a line, this line is an Indivisible Surface; and the surface, again, is an Indivisible Solid, so that theend of each stage is the beginning of the next.

But it is difficult to believe that this ingenious interpretation, I mean Stenzel's, is the last word, since, as Ross[3] points out, 2 and 3 are not species of the One, nor does this diaeretic scheme fit Aristotle's evidence on the generation of Number.

A less fanciful, but very attractive theory, is that of Robin.[4] According to him, Ideal Numbers are entities different in kind from Ideas, and higher in the scale of realities, being in fact the formal principle of the Ideas. The essence of this theory lies in its preferring a passage of Theophrastus, where the Ideas are said to depend on the Numbers, to Aristotle, and the application of two passages in Aristotle to confirm this: Nicomachean Ethics 1096a17-19 and De Anima 404b16-27. There is a possibility, however, that Robin's interpretation of these passages is at fault, since van der Wielen[5] shows with plausibility that Theophrastus is referring to the dependence of the 'Ideas' of Magnitude from Numbers, since he has interpreted the De Anima passage along different lines, and since it is fairly well established that 1096a17-19 means not the denial of Ideas of Number but of an Idea of the Number series in general.[7] However that may be, Ross[8] follows Robin in assigning Numbers to the Ideas, i.e. the Ideas would have a formal element which was a Number, e.g. Line is formed by Two, Surface by Three, Solid by Four. These, however, are exceptional cases, and not only do the very passages which Ross cites[9] to show that in the dialogues the Forms are referred to as Monads indicate that their formal element was not a Number but the One - for One was not a number according to the current Greek conception of number[10] - but Aristotle himself is at least consistent in this, that with the exception of the Line, Plane and Solid, which may indeed have been a 'Fourth Class', he everywhere names the One as the formal element of Ideas and nowhere else regards Numbers as such.

1. Op. cit. 102-3 & 117. 2. Classical Quarterly XXX.122-5.
3. Plato's Theory of Ideas 195. 4. Greek Thought 212, Platon 142-8, 166, 237-8, and Classical Review XXIII.198.
5. Die Ideegetallen van Plato 152-4. 6. Op. cit. 161-9.
7. So Cook Wilson, Classical Review XVIII.247; Taylor, Plato, the Man and his Work 506-7; van der Wielen, op. cit. 66 note 105; and Ross, Plato's Theory of Ideas 181.
8. Plato's Theory of Ideas 216-9.
9. Aristotle's Metaphysics I. lxix.
10. So van der Wielen, op. cit. 14-15, and Ross, Plato's Theory of Ideas 178.

Jackson's view might well come in here, since it too distinguishes Ideas and Numbers, and makes the latter the formal element of the former; but his view is complicated and rendered almost unique by being worked out as a system of 'thoroughgoing Idealism'.[1] The essence of the relevant part of his interpretation is a distinction between Ideas and Numbers based on the mention of μέτριον καὶ ποσόν as the Limit in the Philebus. This he takes, by amending the text of Metaphysics A.vi, as proof that while Ideas, as μέτριον, are the formal principles of sensible things, that of Ideas is τὸ ποσόν, Numbers.[2] But various scholars[3] have shown that his distinction between μέτριον and ποσόν is fanciful, and his system of thoroughgoing Idealism has been attacked by many.[4]

iii) The identity of Ideas and Numbers:

a) ἀριθμοὶ ἀσύμβλητοι: Aristotle repeatedly characterises the Platonic Numbers by two expressions, ἀσύμβλητοι and Before and After. The former word has sometimes been translated 'inaddible' because such numbers have a qualitative instead of a quantitative nature.[5] But van der Wielen[6] has shown that it really means 'incomparable', i.e. neither equal to nor greater nor smaller than one another, and so such numbers are not quantities, which seems to me to come to much the same thing. So also Ross,[7] that they are different in species. Ideas, then, can be identified with Numbers in this sense that it is made explicit with regard to Ideas of Number what was involved in their being Ideas.[8] The other term, Before and After, is generally[9] referred to the serial order of the integers. Hence, one way of interpreting the identity of Ideas with Numbers is to suppose that the Ideas of Number are made Ideal Numbers by being given the serial order of Before and After.

α) Ideas of Number as some among the Ideas: Ritchie[10] interpret Metaphysics 1078b9-12[11] as evidence that Ideal Numbers have been added to the Theory of Ideas. He seems to me to mean that Ideas of Number, as some among other Ideas, are made Ideal Numbers by being given a serial order, as explained above.-Twoness can exist without Threeness, but Threeness cannot exist without Twoness.[12] Against this, several arguments can be urged. Cook Wilson[13] has shown not

1. See Encyclopedia of Religion and Ethics X.57-60; Journal of Philology XIII.32-3; cp. Archer Hind, Journal of Philology XXIV. 52. 2. Journal of Philology X.278-284.
3. Grube, Plato's Thought 302; Dickenson, Journal of Philology XX. 124; cp. Schulhof, Journal of Philology XXVIII.4-6; Ross, Plato's Theory of Ideas 133-4. 4. Dickenson, op. cit. 122-3; Davies, Journal of Philology XXV.8 etc.; Cook Wilson, Classical Review III.119-121. 5. So Frank, Plato und die sogenannten Pythagoreer note 259, Robin, Platon 143. 6. Die Ideegetallen van Plato 65. 7. Aristotle's Metaphysics II.427 ad 1080a19.
8. Ross, Aristotle's Metaphysics I.li-lii; cp. Plato's Theory of Ideas 180; Classical Review XVIII.253.
9. Cp. Cherniss, Aristotle's Criticism of Plato 522; van der Wielen, op. cit. 65f. 10. Plato 118.
11. "Not connecting it in any way with the nature of Numbers"
12. See Metaphysics 1019a2-4. 13. Classical Review XVIII.249.

merely that Ideas of Number occur in Phaedo 101BC, i.e. in the Earlier Theory of Ideas, but that even there they were Ideal Numbers[1] so that what was original cannot be interpreted as the change in Platonism. In any case Aristotle quite plainly says that ALL Ideas were Numbers.[2] Thirdly, one might wonder what object there could be in insisting that the Ideas of Number be themselves Numbers.

This last point has been taken up by Taylor. He has given[3] a very ingenious reason why Plato should have wished to make this otherwise rather aimless identification - he had redefined Number so as to include surds. This Taylor[4] tries to apply by using a continued fraction for determining the value of $\sqrt{2}$ and thereby to explain Plato's use of the term, the Great and the Small. D'Arcy Thompson[5] has shown that the series of side and diagonal numbers give the same result and are easier to work with. It is probably no real objection to this view, which Milhaud[6] accepts in principle, that, as van der Wielen[7] has shown, surds or irrationals were not considered by the Greeks to be numbers, but to belong to geometry; however, as Ross[8] objects, the whole procedure presupposes the very integers it is meant to explain and does not really have anything to do with the use of the term, the Great and Small.

β) Ideas of Number as the only Ideas: We said above that Ritchie's identification of Ideas of Number with Ideal Numbers suffers from this defect that it does not identify all Ideas with Numbers, but only some. Van der Wielen[9] escapes this difficulty by confining Ideas, i.e. the later Idea-Numbers, to Ideas of Number, and then identifying these with Ideal Numbers, as explained above. But it is inconceivable that Plato abandoned Ideas of moral concepts and of natural kinds; in fact, Epistle vii.342DE written 353 B.C. gives a very long list of Ideas indeed.

b) A one-one identification of Ideas and Numbers: Nearer to the truth, then, is the view which identifies all Ideas, including those of the natural kinds as well as Twoness and Threeness, with Numbers, and the most obvious such identification is a one-one identity of Ideas with Numbers. The most striking evidence for this is Metaphysics 1081a11-12, 1083b4a14, where Man is 3, and 1084a25, where Man is 2, and this view Ross earlier adopted,[10] but later recanted,[11] and rightly so, I think, since the very fact that Aristotle is uncertain whether Man is 2 or 3 shows that he is making his own inference from the thesis that Ideas were Numbers, and that

1. Cp. Cherniss, Riddle of the Early Academy 33-5.
2. A list of passages identifying Ideas and Numbers is given by van der Wielen, op. cit. 53-7, and Ross, Aristotle's Metaphysics I. 165, and Plato's Theory of Ideas 216. 3. Plato, the Man and his Work 505; Commentary on Plato's Timaeus 366-7; Mind XXXV.427.
4. Plato, the Man and his Work 510; Mind XXXV.430.
5. Mind XXXVIII.45-6. 6. Les Philosophes Géomètres de la Grèce 351, 358. 7. Op. cit. 14-6. 8. Plato's Theory of Ideas 183-4. 9. Op. cit. 58-70, criticised in Mnemosyne XI.iv.263.
10. Aristotle's Metaphysics I.lxvii-lxx.
11. Plato's Theory of Ideas 218 note 1.

such a one-one identification was not made by Plato himself. But there still remains another method of identifying Ideas with Numbers besides this.

c) Metaphorical identification: Cook Wilson[1] was, I believe, the first to point out that Ideas were Numbers only in a metaphorical sense, and this has been made more explicit by Gillespie,[2] that Aristotle never calls Forms Numbers except in relation to the One and the Dyad, the Forms being Numbers only in respect of their origin. So Cornford[3], that Numbers can be analysed into two principles, and Plato regarded all Ideas as in some sense Numbers because composed of corresponding principles. Also Milhaud[4] states that, while in Philebus 26AB the Continuum is characterised by as More and Less which, when combined with the Limit, transforms Ideas into Numbers, in his Oral Teaching Plato went further and subsitituted the Great and Small, by joining which with the One Plato made Ideas as Numbers are made. This is the interpretation which has been adopted in this work, the reasons for which will appear in the course of the exposition.

The above review, and this will be to some extent corroborated in the examination of what Aristotle said in Metaphysics A.vi.1 in the next section, indicates to some extent the topics which are to form the subject-matter of this dissertation and the limitation of its scope. For this subject-matter would seem to be concerned with three topics: 1. the schools of Pythagoreanism and the doctrines held by each; 2. the hypostatisation of Plato's Ideas and the nature of Participation, but especially that phase of his later doctrine usually referred to as Idea-Numbers; and 3. the resemblances between Platonism and one or more schools of Pythagoreanism. And again certain restrictions must be imposed in the interests of relevancy. We shall omit 1. the religious side of Pythagoreanism together with Orphism; 2. any discussion of the nature of the later Ideas insofar as they are not Numbers or not treated numerically; and 3. any non-philosophical resemblance between Platonism and Pythagoreanism. For this dissertation is concerned not with any Platonic resemblances to Pythagoreanism whatsoever, but only with that phase thereof which is attested by Aristotle in Metaphysics A.vi.1, together with as much of the nature of Pythagoreanism and of Platonism as is necessary for its interpretation.

1. Classical Review XVIII.248.
2. Journal of Philology XXXIV.152-3.
3. Cambridge Ancient History Vol. VI. Ch. ix. p. 331.
4. Les Philosophes Géomètres de la Grèce 356-7.

Section ii. What Aristotle Said in Metaphysics A.vi.1.

A.vi.1. The crucial sentence, which forms the immediate concern of this work, is Metaphysics A.vi.1, and it reads as follows: μετὰ δὲ τὰς εἰρημένας φιλοσοφίας ἡ Πλάτωνος ἐπεγένετο πραγματεία, τὰ μὲν πολλὰ τούτοις ἀκολουθοῦσα, τὰ δὲ καὶ ἴδια παρὰ τὴν τῶν Ἰταλικῶν ἔχουσα φιλοσοφίαν. As a piece of Greek, it does not offer any great difficulty in translation, and Ross'[1] is as good as any: "After the systems we have named came the philosophy of Plato, which in most respects followed these thinkers, but had peculiarities which distinguished it from the philosophy of the Italians."[2]

But while the sentence can be thus easily translated, it is not so summarily disposed of. A complete discussion of what Aristotle said here requires some comment, even explanation, on each of the seven phrases into which it can be analysed. These are:

i) 'The systems we have named', τὰς εἰρημένας φιλοσοφίας.
ii) 'The philosophy of Plato', ἡ Πλάτωνος πραγματεία.
iii) 'These thinkers', τούτοις.
iv) The respects in which Plato followed them, τὰ μὲν πολλὰ τούτοις ἀκολουθοῦσα.
v) The meaning of 'following', ἀκολουθοῦσα.
vi) Plato's peculiarities, τὰ δὲ καὶ ἴδια ..... ἔχουσα.
vii) 'The philosophy of the Italians', τὴν τῶν Ἰταλικῶν φιλοσοφίαν.

Before attempting to comment on these phrases, it is necessary to review the context of this sentence.

Its context. Aristotle sets himself the task in this book, A., of going over the views of those who had attacked the investigation of Being and had philosophised about Reality before himself, for by so doing he will either find another kind of Cause than the four he had discovered, or be more convinced of their correctness.[3] He starts from the first philosophers,[4] the Milesians, from whose beliefs one might think that the only cause was the so-called material cause.[5] To find the second cause he turns to those who make more elements,[6] and discovers a principle different in kind from the material in the Reason of Anaxagoras,[7] and the two principles of Empedocles, Friendship and Strife.[8] In order to observe some semblance of

1. In quoting or rendering the Metaphysics, here and elsewhere, I use the translation of Sir W.D.Ross, as it is rendered in The Basic Works of Aristotle, edited Richard McKeon, Random House, New York, 1941.
2. This translation explains why, in the title of this work, the words, 'the philosophy of the Italians', have been placed between inverted commas. We are to deal with Plato's relationship to the philosophy thus termed in A.vi.1, where Aristotle alleges some relationship between it and Platonism.
3. Metaphysics 983b1-6. 4. Met. 983b7ff. 5. Met. 984a17-18.
6. Met. 984b5. 7. Met. 984b15-19. 8. Met. 984b33-5a10.

chronological order, he then gives a short account of Leucippus and Democritus,[1] the Atomists, which does not advance the argument at all, because these, like the others, lazily neglected the question of movement.[2] The search for Essence, the third cause, however, leads him to a slight sacrifice of chronological order, for the philosophy here in question, that of the 'so-called Pythagoreans',[3] is introduced as contemporaneous with the former and before them.[4] After giving a short account of their beliefs, Aristotle breaks off, digresses about the Eleatics, and then[5] summarises what has gone before. This summary evidently excludes the 'so-called Pythagoreans' whom Aristotle at this point[6] calls the 'Italian school', and he repeats himself that some introduce the source of movement, either as single or as two-fold,[7] and resumes the thread of his argument by turning to the question of Essence. Here he states that the Pythagoreans began to make statements and definitions, but treated the matter too simply.[8]

Then comes A.vi.1:"After the systems we have named came the philosophy of Plato, which in most respects followed these thinkers, but had peculiarities that distinguished it from the philosophy of the Italians."[9] As the next word is 'for', γάρ ,[10] the following account, which begins with the origin of Plato's introduction of the Ideas due to the influence of Cratylus and of Socrates,[11] must give the reason for the peculiarities that distinguished Plato's from the philosophy of the Italians. However that may be, Aristotle gives a fairly detailed account of Platonism, in the course of which he lists several points of agreement with and difference from the Pythagoreans. He then evaluates Plato's tenets in the light of the causes sought, and concludes that Plato used only two causes, that of the Essence and the material cause.[12]

Analysis of A.vi.1: From this context the answers to some of the questions set above are immediately apparent, and the place at least is indicated where the answers to the others may be found. But before these answers are given, it is necessary to make a point. It will be seen from the context above that after the summary of 987a3-9, Aristotle proceeds to the question of Essence and instances the Pythagoreans, who made statements and definitions. The trend of Aristotle's thought and the fact that this characteristic can apply only to one school, which has been mentioned before, makes it likely that this is the same as the 'so-called Pythagoreans' of A.v, and since the latter are called 'the Italian School' at 987a10, these are also the same as the 'philosophy of the Italians' from whom

1. Metaphysics 985b5-19. 2. Met. 985b19-21.
3. I use inverted commas until it has been determined whether or not the 'so-called' has any special significance; see page 9 above.
4. Met. A.v.985b23-4. 5. Met. 987a3-9. 6. Met. 987a10.
7. Met. 987a11-13. 8. Met. 987a13-22. 9. Met. 987a29-31.
10. Cherniss, Aristotle's Criticism of Plato 191-2, says that the γάρ makes no sense. I leave the decision to the reader.
11. Met. 987a32-b14. 12. Met. 988a8-10.

Plato differed in A.vi.1. This identification will be proved in the main body of this work, and can be here anticipated.

i) 'The systems we have named': Aristotle has named or mentioned the Milesian school, Anaxagoras and Empedocles, the Atomists, the 'so-called Pythagoreans' and the Eleatics, the second last being also called Pythagoreans and 'the Italian school'. But since the whole purpose of the review of these systems is to set out in order the anticipations of his own four causes, and Aristotle has at this point arrived at the third of these, that of Essence, which begins a new section, so to speak, and is cut off from what goes before by the summary of 987a3-9, it is to the systems named in this connection that he particularly refers. This is the Pythagorean philosophy of 987a13-22, and as this is the same as the 'so-called Pythagoreanism' of A.v, it may perhaps be coupled for the purpose of this back-reference with Leucippus and Democritus, who were roughly contemporaneous with it. Hence, when Aristotle says, "After the systems we have named came the philosophy of Plato", he means that Platonism came after, i.e. chronologically posterior to, the 'so-called Pythagoreans', Leucippus, and Democritus, who were all roughly contemporaneous[3]. We know that Leucippus preceeded Democritus, and Aristotle says the 'so-called Pythagoreans' were contemporaneous with and before them[3]. Democritus can be dated with fair accuracy. His floruit, according to Apollodorus,[1] was 420 B.C., and even if we take the latest date suggested by Frank,[2] who gives his period of activity as 430-400, Plato's philosophy was still subsequent to this since he is almost universally accepted as having commenced his writings only after the death of Socrates in 399 B.C.

iii) 'These thinkers': The word for 'these thinkers', τούτους, is a demonstrative pronoun which refers back to the party last named[3] who are the Pythagoreans of 987a13-22. Plato, then, followed these Pythagoreans, who began to make statements and definitions. But, as we have said, these are the same as 'the philosophy of the Italians', from whom Plato differed. That is, Plato followed the Pythagoreans in most respects, but not in all, for (γάρ) he had peculiarities of his own which distinguished his philosophy from that of the Italians, i.e. these same Pythagoreans. So in the list of resemblances and differences in A.vi, Aristotle does not say that Plato resembled the Pythagoreans and differed from the Italians, but names only the Pythagoreans. This, of course, raises a further problem, viii), why Aristotle calls this school Pythagoreans in one place, and Italians or 'so-called Pythagoreans' in another.

1. Diogenes Laertius IX.41, cp. Burnet, Early Greek Philosophy 381- born 80th Olympiad, 460-57 B.C., but Thrasylus dates him 10 years earlier, whence perhaps Frank's figure for his floruit, 430.
2. Plato und die sogenannten Pythagoreer 10.
3. Cherniss, op. cit. 177 note 100, says "it should naturally refer back to the philosophies already mentioned" and since these are the Pythagoreans, which by implication Cherniss denies, we must allow more weight to Ross, Plato's Theory of Ideas 154 note 1.

vii) 'The philosophy of the Italians': If, as we said, the 'philosophy of the Italians' is the same[1] as the Pythagoreanism of 987a1β-22 and the 'so-called Pythagoreanism' of A.v. 985b23-6a21, then what Aristotle understood by this philosophy - i.e. its tenets- can be gathered from an examination of the account of 'so-called Pythagoreanism' as given in A.v.985b23-6a21. But why he uses three apparently different names for what seems to be one school, i.e. problem viii), cannot be ascertained from the context and must be gone into when the nature of Pythagoreanism is investigated.

ii) 'The philosophy of Plato': What Aristotle understood by the 'philosophy of Plato' IN THIS CONTEXT will obviously be discovered from an examination of the account which he gives in A.vi. But this account cannot be considered in isolation from iv), its resemblances to Pythagoreanism, and vi) its peculiarities, for not only does that account consist to a large extent of a list of these peculiarities and resemblances, but the γάρ referred to above implies that the whole first part of the account has been given with the sole purpose of accounting for one at least of Plato's distinguishing characteristics. There is, in fact, very little in Aristotle's account of Platonism in A.vi which is not concerned either with accounting for a peculiarity distinguishing it or with stating a resemblance between it and Pythagoreanism. It is not, and was not intended to be, a full account of Plato's philosophy, but had as its primary purpose the ascertaining to what extent Plato had anticipated Aristotle's four causes, and secondarily the substantiation of his statement of its relationship to Pythagoreanism by detailing its resemblances and differentiating characteristics. The account is thus confined to what Aristotle calls the essential and the material causes, and the agreements with and differences from Pythagoreanism, and these two overlap to a great extent. As the scope of this work has been restricted to that phase of Platonism which A.vi.1 alleges to have stood in some relationship or other to Pythagoreanism, the source for this phase will be A.vi, where Aristotle details just that relationship between the two philosophies, and will fall together with the discussion of iv), Plato's resemblances to, and vi), his differences from, Pythagoreanism.

v) 'Following': There remains to discuss the implications of the word 'following' (ἀκολουθοῦσα). The short statement given above of the context of A.vi.1 shows that it is not possible to decide from that context whether Aristotle meant chance agreement or deliberate borrowing. Nor will a decision be possible until at

1. Ritchie, Plato 11, looking doubtless to their geographical seat, thinks that both Pythagoreans and Eleatics are meant by the Italian philosophy. But Ross, Aristotle's Metaphysics I.xlvii, is definite that the Eleatics are not included among the Italians here, and Cherniss, op. cit. 177 note 100, confines the Italians m to the Pythagoreans alone.

least the precise nature of the 'philosophy of the Italians', of the phase of Platonism affected, and of the details of the relationship between them, have been determined. Until, then, such a discussion has yielded some definite conclusion, it will be advisable to render this word by some such non-committal expression as 'following', 'resemblance', or 'agreement', without thereby implying whether such resemblance was conscious or the result of chance.

Summary: We can, then, summarise the results of the above analysis as follows: i) Plato's philosophy was subsequent to the systems named in the preceding two books of the Metaphysics, those of the 'so-called Pythagoreans' and the Atomists. iii) With these thinkers, i.e. the Pythagoreans, Plato showed many points of agreement, and viii) as they are also named 'the Italians', we must inquire the reason for the difference in nomenclature. vii) However that may be, what Aristotle understood by 'the philosophy of the Italians' is set forth in A.v. With this philosophy ii) that of Plato stood in some kind of relation, and what Aristotle understood by Platonism in this connection can best be elucidated by a consideration of iv) his list of resemblances and vi) of his peculiarities, which are given in A.vi. After an examination of these points, it remains to consider v) what was the precise nature of this relationship - deliberate borrowing or unconscious parallel development. This exhausts the content of Metaphysics A.vi. 1, and since a sufficient answer has been given to points i and iii, there remain for subsequent investigation the three topics around which the other points can be grouped.

The scope of this thesis: These three topics, the discussion of which will exhaust the possibilities of Metaphysics A.vi.1, centre around points vii and viii above, points ii, iv and vi, and point v, and can be headed respectively: 1. 'The philosophy of the Italians', ἡ τῶν Ἰταλικῶν φιλοσοφία ; 2. 'the philosophy of Plato', ἡ Πλάτωνος πραγματεία , which entails the examination of a) 'the peculiarities that distinguished it', τὰ δὲ καὶ ἴδια ἔχουσα , and b) the many respects in which it followed these thinkers, τὰ μὲν πολλὰ τούτοις ἀκολουθοῦσα ; and 3. the nature of the relationship denoted by 'following', ἀκολουθοῦσα. It will be seen that this scheme agrees in the main with that set out from a study of modern interpretations centering around the relationship between Plato and the Pythagoreans, as alleged by Aristotle here.[1]

Now this scheme, as set out above, is meant to deal exclusively with the evidence of Aristotle. Naturally this evidence will not be confined to Metaphysics A.v and vi, which supplement the immediate subject of this dissertation - the discussion of Metaphysics A.vi.1 - but will take cognisance of what Aristotle says elsewhere in his works, but chiefly elsewhere in the Metaphysics. Nevertheless, such an extension of the scope of this discussion will not be exhaustive

1. See page 19 above.

if so limited, since this may be sufficient to determine what Aristotle meant by this sentence, but will not therefore guarantee the historical correctness of his conceptions. Hence, this work will be divided intotwo distinct and separate parts: firstly, it must be determined from Aristotle's evidence alone what he meant by the 'philosophy of the Italians', how he conceived that phase of Platonism which he has brought into some relationship with that philosophy especially its resemblances to and differences from it, and what type of relationship he understood it to be - whether chance agreement or conscious borrowing. This is, roughly, the scheme set out just above, and forms only the first part of this work. For it is quite possible either that Aristotle misunderstood or that he deliberately misrepresented all these points, so that the investigation envisaged must be supplemented by a second part dealing with evidence as far as possible independent of Aristotle's in order to ascertain the historical correctness of his conceptions.

Thus, and this cannot be overemphasised, the first part of this work will aim at determining Aristotle's meaning without taking into consideration at all whether or not his account gives a correct or a fair interpretation of the points dealt with, and will accordingly deal almost exclusively with Aristotle's evidence; on the other hand, the second part will aim at checking the historical truth of his statements, and will do so, as far as possible, by treating evidence which is independent of his influence - as far as is possible, because in certain cases his is the only evidence extant. With this distinction in mind, then, I pass to the first part of this work - the attempt to determine what Aristotle meant in A.vi.1, based solely on his evidence in the Metaphysics, supplemented where necessary from his other works.

Part I. What Aristotle Meant in Metaphysics A.vi.1.

Chapter 1. ἡ τῶν Ἰταλικῶν φιλοσοφία.

Introductory.

Only one Pythagorean school in book A: Before a proper methodological basis can be obtained for determining what Aristotle meant in Metaphysics A.vi.1 by the 'philosophy of the Italians', it is important first to realise that, with the exception of a single passage, throughout book A he has in mind one and the same school of Pythagorean philosophy, and secondly to demonstrate this. The first aim has been to a certain extent realised by our remarks in the Introduction,[1] that it is the same school to which he refers as Pythagoreans both in 987a13-22 and in relationship to Plato throughout A.vi, as 'so-called Pythagoreans' in A.v, and as the Italian school or the philosophy of the Italians in A.vi.1. It remains to extend this identification to ALL references to Pythagoreans in the book, and in demonstrating this the promise previously made, that this equation would be more completely proved, will be thereby fulfilled.

For this demonstration I shall give a short account of the various places in book A where Aristotle deals with some Pythagorean school, irrespective of its designation, make a grouping of passages where the context indicates that in that place the same school is obviously intended, and conclude by showing the essential identity of the school dealt with in these separate places, which number three altogether.

The first place where such a school is mentioned is A.v, where Aristotle expounds the philosophy of what he calls 'the so-called Pythagoreans',[2] mentioning the Table of Contraries of "other members of the same school".[3] After a digression about the Eleatics, he summarises,[4] preparatory to his introduction of the cause of the Essence which he is searching for, and excludes from the summary the 'Italian school'.[5] He then turns to the question of Essence by outlining the beliefs of what are here called the 'Pythagoreans'.[6] Then in A.vi.1 he says that Plato's doctrine followed "these thinkers" (τούτοις), but had peculiarities which distinguished it from the 'philosophy of the Italians', and in the course of A.vi he lists certain agreements of Plato with and differences from the 'Pythagoreans'.[7] He then turns to criticise the systems he has named, dealing with the 'so-called Pythagoreans' in A.viii,[8] and apart from the bare statement in a summary in A.vii that Plato "spoke of the Great and Small, the Italians[9] of the Infinite",[10] the

1. See page 21.
2. Metaphysics 985b23-6a21.
3. Met. 986a22-26.
4. Met. 987a3-13.
5. Met. 987a10.
6. Met. 987a13-28.
7. Met. 987b11ff, 22ff, 31.
8. Met. 989b29ff.
9. This obviously refers to Plato's following the Pythagoreans in making the other element than the One an Infinite, but differing in making this a Dyad instead of a single entity, as in 987b25-6 & 30.
10. Met. 988a26-7.

only other place in this book where Aristotle mentions these parties is in A.ix.1, where, turning to his criticism of Plato, he says, "Let us leave the Pythagoreans for the present."[1]

Now in this summary it is clear that there are three interconnected passages, which can be grouped as follows, andeach of which deals with one and the same school - in this grouping I omit the "other members of the same school" of 986a22-26, whom Aristotle himself thus distinguishes from the main body of references.

i) The account of the doctrine of the 'so-called Pythagoreans' and the criticism thereof:- In A.v Aristotle is obviously dealing with the same school, which he names that of the 'so-called Pythagoreans', from the beginning of the chapter where he introduces them down to where he turns off to "others of the same school", i.e. from 985b 23 to 986a21. The plan of his book is to state the system he is dealing with, and afterwards to critidise it, hence, apart from the fact that the relevant criticism in A.viii is introduced as that of the 'so-called Pythagoreans', the whole plan of his book indicates that it is the same school which is desribed in A.v and criticised in A.viii.

ii) The Pythagoreans of the Essence:- Pausing before he takes up the search for the Essence, Aristotle excludes from the summary[2] of what has gone before the 'Italian school',[3] and then turns to the Pythagoreans who sought the Essence.[4] Hence, despite the difference in terminology, these Pythagoreans of the Essence are the Italian school excluded in 987a10.

iii) The followings and peculiarities of Plato:-The balance of the sentence, A.vi.1, shows that, as stated in the Introduction,[5] Plato followed and differed from the same party; and in any case in the course of listing these resemblances and differences in A.vi only one party is named as that which Plato both differed from and agreed with - the Pythagoreans. Hence, as appeared in ii above, the 'philosophy of the Italians' from which Plato differed, and the Pythagoreans -τούτοις - whom he followed, are one school, that of the Pythagoreans with whom he is compared and contrasted in the course of A.vi.

Two places have been omitted here, and for the sake of making this grouping exhaustive, they can be placed forthwith. The one is 988a26-7, and note 9 on the previous page shows this brief reference belongs to group iii. The other is 990a33, which, as it forms the transition from group i - the criticism of the 'so-called Pythagoreans' - to the criticism of Plato, belongs to that group, group i. A complete and exhaustive list of references to Pythagorean schools in book A, then, comprises just these three groups of passages. That all these passages refer to one and the same school can be shown as follows:-

1.Metaphysics 990a33. 2. Met. 987a3-13. 3. Met. 987a10.
4. Met. 987a28-28. 5. See page 22 above.

a) The identity of groups i and ii:- In the summary of group ii, Aristotle excludes what he here calls the Italian school. This can only refer either to the 'so-called Pythagoreans' of 985b23-986a21 or to the 'others of the same school' of 986a22-26. But the latter are mentioned only in connection with a Table of Contraries, whereas the former are dealt with in some detail and are said to have held Number as the principle of things both as their matter and as forming their modifications and permanent states.[1] When Aristotle turns again to the Italian school, calling them Pythagoreans, he distinguishes them as believing that Number was the substance of all things,[2] so that he must be referring to the 'so-called Pythagoreans' and not to the 'others of the same school'.

b) The identity of groups ii and iii:- The demonstration of the identity of these two groups turns on that τούτοις which was discussed in the Introduction.[3] That is, it links up Plato's resemblances to the Pythagoreans of the Essence in group ii with the list of his resemblances given in A.vi to the Pythagoreans of group iii.

Therefore, we conclude that in the whole of book A, except for the 'other members of the same school' who are characterised by a Table of Contraries,[4] Aristotle has in mind one and the same school, and this is in fact the only Pythagorean school whose doctrines are referred to in that book. This is an important conclusion, since many modern commentators pick and choose from the various tenets expounded in book A as they please, so long as they find in them evidence for the particular school they wish to demonstrate. This is one of the reasons for the variety of interpretations of Pythagoreanism; but a different, and in my opinion more correct picture is drawn if it be laid down as a necessary methodological procedure that all references to Pythagoreanism in Book A, except of course the Table of Contraries mentioned above, MUST belong to one and the same school. As an example of this random selection of references I cite the following.

Raven distinguishes two successive Pythagorean schools, of which the earlier identified Numbers and things, which he illustrates by 987b28,[5] and 986a17, that Numbers were 'matter'.[6] Further, for immaterial concepts they spoke of things imitating Numbers as in 985b29 and 987b11-2.[7] All these references comefrom book A, and yet he says[8] that 985b23-6a21, i.e. A.v, refers to Philolaus, 'other members of the same school' meaning an earlier generation. But if the 'others of the same school' are the earlier generation, and the Pythagoreans of the preceding portion of A.v are those of a later generation - the school of Philolaus - how can he use references from this passage and elsewhere in book A, as cited above, to illustrate the

1. Metaphysics 986a16-7. 2. Met. 987a19. 3. Page 22 above.
4. Met. 986a22ff. 5. Pythagoreans and Eleatics 48 & 53.
6. Op. cit. 58-9. 7. Op. cit.51-2,56 7& 62. 8. Op.cit. 113-4.

earlier school which identified things and Numbers?

The designation of this school: Before going on to expound our interpretation of this school, one problem, that referred to as viii above, remains to be solved. If it is one and the same school that Aristotle has in mind in book A, how can he designate it by three different appellations - Pythagoreans, 'so-called Pythagoreans' and the 'philosophy of the Italians'? This discussion falls into three parts: a) the demonstration of the essential identity of the last two; b) the demonstration of the identity of the first two, at least in book A; and c) the explanation of the term 'so-called'.

a) The identity of 'so-called Pythagoreanism' and the 'philosophy of the Italians': In A.v[1] Aristotle makes a back-reference to De Caelo ii.13, where an astronomical system is expounded identical with that noticed there. The details of this system do not here concern us; what concerns us is that he ascribes this system to "the Italian philosophers known as Pythagorean",[2] where in the Greek the word for 'known as' is the same as that for 'so-called', viz. καλούμενοι . The meaning of this word will be discussed under c) below. This appellation shows that this school, which is the same as that dealt with in book A and similarly dubbed there, was specifically the Italian school, and that it laid claim to the title of Pythagorean, generically as one might say. So in 987a10, 987a31 (i.e. A.vi.1) and 988a26-7 Aristotle names the school as the Italian, and in 985b23 (i.e. A.v) and 989b29 (i.e. A.viii) as the 'so-called Pythagorean'.

b) The identity of 'so-called Pythagoreans' and Pythagoreans in book A: It is unnecessary to detail the places in book A where Aristotle names this school as simply Pythagorean, since that has been sufficiently done in the summary of page 26-7 above. Assuming that there was a reason for the addition of 'so-called' where it is found, for Aristotle is hardly verbose, one might say that he uses the shorter term in order to save a word, but a more likely explanation is that there was more than one school which claimed to be Pythagorean. This Italian school claimed to be Pythagorean - so that they could be called Pythagoreans -, but Aristotle feels now and then an urge to distinguish this school from the other or others by an epithet -'so-called'- the force of which will be discussed under c) below. At this point we need to show that Aristotle knew of another school which claimed to be Pythagorean, and the proof of this is found in 986a22:"OTHER MEMBERS of the same school". Again, in Metaphysics 1091a15-8 the Pythagoreans are said to "say plainly that when the One had been constructed, whether out of planes or of surface or of seed or of elements which they cannot express,

1. Met.986a12-3; cp. editor's note ad loc., referring the reader to De Caelo ii.13. 2. De Caelo 293a20-27.

immediately the nearest part of the Unlimited began to be constrained and limited by the Limit". Now the variety of modes in which the One is here said to have been constructed can hardly refer all to one and the same philosophy, since, whatever may have been the case with planes and surfaces, Seed at least, as the manner of the construction of the One, is not compatible with its construction from elements. It is perhaps this feeling that led Ross[1] to state that "Aristotle's suggestion as to the mode of composition of τὸ ἕν is not necessarily based on any Pythagorean doctrine, but may be his own conjecture." However that may be, either, if not both, of these passages indicates that Aristotle knew of more than one Pythagorean school; so that the school of book A was known as Pythagorean, but Aristotle chose to distinguish it from the other Pythagorean school or schools by the addition of the epithet, 'so-called'. The reason for this addition lies in the meaning which he assigned to that word.

c) Explanation of the term 'so-called,' καλούμενοι: There are three different ways in which commentators have explained this word. i) In his note ad loc. Tredennick[2] states, "Aristotle seems to have regarded Pythagoras as a legendary figure". He gives no authority for this, but his remark reminds one of De Anima 410b 22ff (= Diels 66B11). This reads, "The same objection lies against the view expressed in the SO-CALLED Orphic poems", and Philoponus explains the reservation as referring to Aristotle's doubt whether the author of the poems really was Orpheus, since Orpheus was a legendary figure. So also Raven,[3] that Aristotle considers Pythagoras legendary. But this will not do for two reasons. Firstly, the word in the De Anima passage is not καλούμενος but λεγομένους, and secondly if Pythagoreans were so-called because Pythagoras was considered legendary, then this epithet should be or could be applied to any Pythagorean school whatsoever, but I hope to make it clear in the course of this chapter that Aristotle so dubs only the Italian school.

ii) Cherniss[4] takes the word to mean no more than that the Pythagoreans were simply so named, i.e. 'so-called Pythagoreans' is a mere periphrasis meaning simply 'Pythagoreans'. He cites Aristotle's Politics 1290b40, "the food-producing class, who are CALLED husbandmen." This undoubtedly fits such an expression as "the Italian philosophers known as Pythagorean" or "who are CALLED Pythagorean", but here καλούμενος has the force of a past participle; in the "so-called Pythagoreans" it is an epithet. In any case the word could have two meanings or uses, and an example will be cited in iii) below where the word means more than this.

1. Aristotle's Metaphysics II.483 ad 1091a15-18.
2. Aristotle's Metaphysics, Loeb Library Edition, I.32 note a; cp. Ross, Aristotle's Metaphysics I.143. 3. Pythagoreans and Eleatics 16. 4. Aristotle's Criticism of the Pre-Socratic Philosophy 384-5.

iii) Frank[1] takes the 'so-called' as an epithet intended by Aristotle to distinguish this scientific school from the genuine religious Pythagorean community; this was not a genuine Pythagorean school at all, but ascribed their doctrines to Pythagoras to get the weight of his authority. Frank probably goes too far in denying that this school was Pythagorean at all, but I think he is correct in interpreting 'so-called' to mean that Aristotle doubts whether their tenets go back to Pythagoras himself. If, as we said above, there was more than one Pythagorean school, and if one of these was that of the genuine followers of Pythagoras, then one other school which claimed to be Pythagorean, but which Aristotle denied or rather doubted to be really Pythagorean, might well be distinguished by him as a "so-called Pythagorean school". Just how such a school could claim to be Pythagorean and yet Aristotle doubt that claim, cannot be demonstrated from Aristotle's works, so that this question can well be left over for Part II. But to substantiate this interpretation, I point to Herodotus II.81 :ὁμολογέουσι δὲ τάδε τοῖσι Ὀρφικοῖσι καλεομένοισι καὶ Βακχικοῖσι, ἐοῦσι δὲ Αἰγυπτίοισι καὶ Πυθαγορείοισι. This Dodds[2] translates:"These Egyptian practices agree with the practices called Orphic and Dionysiac, which really originate in Egypt and some of which were brought thence by Pythagoras". Now it seems to me that τοῖσι Ὀρφικοῖσι καλεομένοισι is not just a periphrasis for Ὀρφικοῖσι , but that there is a definite and decided contrast between 'called', καλεομένοισι , and 'really', ἐοῦσι δὲ . In other words, Herodotus says these rites are CALLED Orphic but are REALLY Pythagorean. Applied to the phrase here investigated, I would say that the force of the word in question is that the philosophy of the Italians was not REALLY Pythagorean in the strict sense of the word, i.e. the philosophy that Pythagoras originated and taught, but only CALLED Pythagorean,[3] either because it laid false claim to that appellation or in default of some other name. Hence, while any Pythagorean philosophy whatsoever, whether really Pythagorean or only so called, could be referred to as Pythagorean, only the philosophy of the Italians, which was not really Pythagorean but only so called, could rightly have its provenance doubted by being referred to as 'the so-called Pythagorean' philosophy - unless of course there was more than one such philosophy, which has, to my knowledge, never been asserted.

We turn now to an exposition of the doctrines of this school, but with this reservation, that our object is notto attempt to discover what they really were, but only as Aristotle conceived them.

1. Plato und die sogenannten Pythagoreer 69.
2. The Greeks and the Irrational 149 note 96.
3. That is, in Aristotle's opinion, just as the quotation above is only Herodotus' opinion.

Section 1. Exposition of the 'Philosophy of the Italians'.

Evidence: Now if, as we have shown above, the whole of book A, except the digression concerning 'other members of the same school', deals with one and the same school, that of the 'philosophy of the Italians', then an important corollary follows, namely, that this book will form the primary source for what Aristotle understood by this philosophy. And it must again be stressed that we are here concerned solely with what Aristotle meant, leaving over for part II the task of checking the historical correctness of his conceptions. This will have the advantage of enabling us to take his evidence at face value, allowing of course, where necessary, for any obscurities of expression which may need elucidation, but without any reflection on whether he misunderstood, misrepresented or even invented.[1] To this primary body of evidence can further be added those passages in his works where various tenets are ascribed either to the Italians or to the 'so-called Pythagoreans', since it has been shown that these are the designations which he applies to this school. But since there was more than one school called or laying claim to the name Pythagorean, any passages referring to Pythagoreans simply, much less anonymous references which commentators have ascribed to the Pythagoreans, must be regarded with suspicion so far as concerns their being a source for the philosophy here dealt with. The only criterion for such passages as relevant evidence will be their consistency with the results derived from the study of the primary sources, and such as are thus consistent therewith can be regarded as secondary sources, but must be treated with caution.

The core, then, of our evidence, the primary sources, will be book A - that is, excluding unhelpful short references, A.v, vi and viii,- and De Caelo 284b6-8, 29320-27, Meteorology 342b29ff and 345a14ff, which are ascribed either to the Italians or to the 'so-called Pythagoreans'. But actually no account need be taken of three of these since they do not form any part of the system, so to speak, expounded in the other body of evidence. These are, namely, De Caelo 284b6-8, which says that they call one portion of the sky the Right and the other the Left; Meteorology 345a14ff, which gives a 'Pythagorean' myth about the Milky Way; and Meteorology 342b29ff, which gives their view of comets and its application to the rare appearance of Mercury. The evidence will be dealt with not in order of pagination, as it is repetitious and confused in lay-out, but systematically so as to unfold their philosophy topic by topic. We begin by examining the procedure characteristic of the school,

1. See Appendix for Cherniss' allegation that Aristotle invented the account of the Pythagoreans of the Essence in order to bolster up his equally fictitious allegation of Pythagorean influence on Plato in Metaphysics A.vi.1.

which is differently expressed, but all to the same effect, in four separate passages.

a) The Procedure Characteristic of this School.

A.v.985b24-26: "The so-called Pythagoreans who were the first to take up mathematics, not only advanced this study but.....thought it its principles were the principles of all things....."

A.viii.989b29-990a8: "They treat of principles and elements stranger than those of the physical philosophers (the reason is that they got the principles from non-sensible things....., the objects of mathematics); yet their discussions and investigations are all about Nature.....With regard to the parts and attributes and functions (sc. of the heavens), they observe the phenomena, and use up the principles and causes in explaining these. But the causes and the principles which they mention are sufficient to act as steps even up to the higher realms of reality, and are more suited to these than to theories about nature."

A.v. 986a3-8: "All the properties of numbers and scales which they could show to agree with the attributes and parts and the whole arrangement of the heavens, they collected and fitted into their scheme, and if there was a gap anywhere, they readily made additions so as to make their whole theory coherent!"

De Caelo ii.13. 293a25-27: "In this way they are not seeking for theories and causes to account for observed facts, but rather forcing their observations and trying to accommodate them to theories and opinions of their own."

These passages show that these Pythagoreans were THE mathematicians of Antiquity, and, carried away by zeal for their subject, they interpreted nature in terms of mathematics. Having determined what were the principles of mathematics, they applied these to nature, so that, instead of trying to account for observed facts, they did not hesitate to force their observations to suit their mathematical theories derived a priori, and where this was impossible it was so much the worse for natute - they simply made such additions to their body of data as were required to make a coherent theory of nature. One can further distinguish certain different departments of their conception of nature. On the one hand were the properties of numbers and of scales, which probably belonged to their a priori deduction of the principles of mathematics, and on the other one can distinguish the attributes, the parts and the whole system (or the functions) of the heavens, to which these principles were applied. It is not quite clear what Aristotle means by 'parts and attributes of the heavens', but 'the whole arrangement of the heavens' can fairly, I believe, be referred to the number and order of the heavenly bodies. But the closer examination of all this must be left over for detailed treatment below.

b) The Three Modes for Explaining the Existence of Sensibles.

We have seen in the Introdution[1] that there are three modes for the relation subsisting between things and Numbers, which have been variously interpreted as the key to the Pythagorean conception of Number, either as things themselves, as ideal patterns or as composite entities formed from elements. All three seem to be attested of one and the same school, since 987b27-28[2] has been interpreted to mean that Numbers are the matter out of which things are composed, 987b11-12[3] to mean that Numbers are ideal patterns, and 986a1-2[4] that Numbers, like sensibles, are composed of two elements. If taken in these senses, there is no doubt that Cherniss[5] is correct when he says: "Aristotle's account is self-contradictory, for he represents it (i.e. the distinctive feature of Pythagoreanism) as identifying Numbers and physical objects, as identifying the principles of Numbers with the principles of existing things, and as making things imitate Numbers.....The certain point is the incompatibility of the thesis that things are Numbers with the other two..... If Numbers are things consisting of a group of units (i.e. points having position), neither Numbers nor things derive from higher principles, and there is no meaning in the elements of Number being the elements of things....Things imitate Numbers again is different from the identity of Numbers and things." As just stated, Cherniss is quite correct: according to the current interpretation of these three modes, i.e. as here expounded by Cherniss, Aristotle is guilty of ascribing to this school three tenets which are mutually contradictory, and as the contradiction could hardly have been held by the Pythagoreans, as it is too obvious, Aristotle's evidence would seem to be valueless. Nor would Cornford's solution,[6] that "Aristotle, in speaking of the Pythagoreans, sometimes refers to the original VI century system, sometimes to the later doctrine, and so seems inconsistent, e.g. in saying that sensibles imitate Numbers and yet actually are Numbers," offer an escape from this dilemma, since, according to MY hypothesis, all three passages belong to one and the same school.[7] Nor from a methodological point of view is Burnet's interpretation[8] more successful. For while he attempts to include all three 'incompatible' modes in one theory, he can only do so by dismissing the last - that the elements of Number are the elements of all things - as "only Aristotle's way of putting it"; but methodologically speaking, there is no reason why he should not have said that 'things are Numbers' is only Aristotle's way of expressing the composition of things and Numbers from the same elements.

1. See pages 3-7 above. 2. "The things themselves are Numbers"
3. "(Things) exist by Imitation of Numbers".
4. "The elements of Numbers are the elements of all things."
5. Aristotle's Criticism of Pre-Socratic Philosophy 386-392.
6. Classical Quarterly XVI.138. 7. See pages 26ff. above.
8. Early Greek Philosophy 332-3.

We must, then, accept all three references for the same Pythagorean philosophy and determine what Aristotle meant by each; and if the three modes, as Aristotle conceived them, turn out to be incompatible, then Aristotle's evidence, in this respect at least, must be quite unreliable. But I think that it is the modern critics who are in the wrong. Let us begin with 987b27-28.

1. "Things are Numbers": The error that modern commentators make is either, like Raven[1], to make a satisfactory examination of the doctrines of what he calls 'the early school', and then seek confirmation of these doctrines in Aristotle WHEREVER THEY CAN BE FOUND. So, correctly I believe, ascribing to this early school the tenet that things consist of Numbers having magnitude, he cites 987b27-28 as evidence for this. But since on Raven's own hypothesis Metaphysics A.v-vi must refer to a later school - since the 'others of the same school' of 986a22-26 are taken to refer to his early school[2]- he is committing a methodological error in using a passage referring to the later school to corroborate the earlier. Or like Cherniss,[3] to use Aristotle's evidence to determine what Aristotle means, but to use for this purpose PASSAGES SELECTED AT RANDOM. So he says, "The meaning Aristotle gives of the identity of things and Numbers is that bodies consist of aggregates of points having position." For the former he uses, indeed, 987b27-28, but for the latter, which is supposed to reveal Aristotle's meaning he uses passages in a much later part of the Metaphysics, which have nothing whatever to do with the 'philosophy of the Italians.' Hence, to avoid these errors, we must confine ourselves to what Aristotle meant, and in determining this we must confine ourselves to the passages listed on page 32 above. If we do this, we shall find in this body of evidence two and only two statements which could be taken to bear witness that things are Numbers, as distinct from the heavens being a Number or that Justice etc. are or resemble Numbers, which are something quite different.

The first of these is the reference under discussion, 987b27-8: "They say that the things themselves are Numbers." Now taken out of their context, as Raven[1] has done, these words might indeed seem to imply that a pyramid is 4, a man 250, or such like. But if we examine the context, we see that this is not Aristotle's meaning. This runs: "Peculiar to Plato is his view that the Numbers exist apart from sensible things, while (the Pythagoreans) say that the things themselves are Numbers." This tenet, then, must be interpreted IN CONTRAST TO WHAT PLATO ASSERTED, for it is only introduced for the purpose of contrasting Plato's Number with that of the Italians. Now Plato held both that Ideal Numbers and mathematical numbers were separate, as immaterial entities, from sensible numbers

1. Pythagoreans and Eleatics 45 & 48. 2. Op. cit. 11, cp. p.28.
3. Aristotle's Criticism of Pre-Socratic Philosophy 389.

If Pythagorean Numbers, then, were not such separate immaterial entities, then for them 'the things themselves were Numbers', i.e. Pythagorean Numbers were phenomenal numbers or sensible numbers or material numbers, as they have been variously termed. This does not mean that things are composed of unit-points having magnitude or that man is the number 250, whatever that might mean, but simply, as Aristotle himself says, that the only number for the Pythagoreans was a number of things,[1] and no more. So Euclid's definition of number[2] as an aggregate composed of units. But these units were, for the Pythagoreans, sensible things, cows, horses, bricks, etc., any aggregate of which was a number, and this was the only number that the Pythagoreans knew - they did not hold separate, immaterial Numbers, as Plato did.

The other reference is quite different. It is 986a16-17, and runs as follows:"Evidently, then, these thinkers also consider that Number is the principle both as MATTER for things and as forming both their modifications and their permament states.[3]" Now I believe that this passage also has been misunderstood and misapplied by modern critics. Nevertheless Ross[4] is correct that, as opposed to Matter, πάθη τε καὶ ἕξεις (which he explains as distinguishable only as temporary and permament modifications) represent a formal cause. Now as Raven[5] points out, such terminology must be Aristotle's conclusion, and not a verbatim report of Pythagorean beliefs. Hence, the correct procedure is to discover what tenet Aristotle had in mind when he made this deduction, and what grounds it afforded for this deduction - and the source for this must come from book A, not M and N, unless the latter can be shown to refer to the same Italian school as A. This can be done by a comparison of two other passages, one of which explains the other. 986b6-8:"They seem, however, to range the elements under the head of Matter; for out of these as immanent parts they say Substance is composed and moulded." 987a17-19:"Infinity itself and Unity itself were the substance of the things of which they are predicated. This is why Number was the substance of all things." That is, because the Pythagoreans said that the elements, Infinity and Unity, were immanent parts out of which sensible things were composed, Aristotle ranges these elements under the head of Matter; and, although not explicit in these passages, Aristotle deduces for the purpose of his attempt to discover anticipations of his four causes, that because this Unity and this Infinity were the elements of Numbers, Number was the substance of all things, and that is what he means by saying that

1. van der Wielen, Die Ideegetallen van Plato 40 note 49:"So in Aristotle, ἀριθμός can be translated 'aantal'".
2. Euclid, Elements VII. Definition 2, quoted by Cherniss, Aristotle's Criticism of Pre-Socratic Philosophy 387. 3. πάθη τε καὶ ἕξεις.
4. Aristotle's Metaphysics I.147 ad 986a17. 5. Pythagoreans and Eleatics 60. So Cherniss, Aristotle's Criticism of Pre-Socratic Philosophy 45.

Number is the principle as Matter.[1] (Its status as formal cause will be dealt with in 2 below.).

Hence, there is no evidence in Metaphysics A that this school held either the identity of things and Numbers, as that is usually understood, or the composition of things from Numbers, much less units, having magnitude. An examination of the evidence enables us to conclude only that Pythagorean Numbers were phenomenal numbers, and that because they held that all things were composed of the same elements as Numbers, Aristotle deduced that they could fairly be said to have used Numbers, ultimately as the substance of things,- as the Matter of sensible things. Aristotle says 'things are Numbers' but the context of this sentence shows that he means that their Numbers were phenomenal numbers, nothing more; he says 'Number was Matter', but an examination of relevant passages shows that this is his deduction from their tenet, that the elements of Number are the elements of all things, and was deduced in order to place their philosophy in some relation to his own - they had not conceived a material cause, but Aristotle thinks that they anticipated its discovery by constructing things out of elements as immanent parts.

Let us now turn to the question of Imitation, which incidentally raises the interpretation of Numbers as formal causes, which was mentioned at the top of this page.

2. "Things exist by Imitation of Numbers".

One might be inclined to interpret Imitation in the natural sense of the word as implying that Numbers are separate from things and serve as their patterns, so that, as Burnet[2] deduces, Pythagorean Imitation left the sensible and the intelligible as two separate worlds, from which it is but a short step to the hypothesis of a Pythagorean Theory of Ideas.[3] But, as Cherniss[4] points out, this asserts agreement with Plato on the one point where they actually differed - Aristotle is very clear that Pythagorean Numbers were NOT separate as Plato's were.[5] And yet, since patterns must be separate, it is difficult to see how they could have been "patterns imitated by things without being separate," as Robin[6] believes they were. Such difficulties arise when we try to interpret what Aristotle meant notfrom Aristotle's words, but from preconceived conceptions either of Pythagoreanism or of the implications of the terms he uses. The correct procedure is to seek his meaning from his text alone; hence we turn to 987b11-12. This reads: "The Pythagoreans say that things exist by Imitation (μιμήσει) of Numbers."

1. So Cherniss, op. cit. 225: "Since the Pythagorean principles are immanent, Aristotle concludes that Number is Matter.....so that all things consist of Numbers" - the last transcends the evidence.
2. Greek Philosophy 166. 3. See page 4 above.
4. Aristotle's Criticism of Pre-Socratic Philosophy 392.
5. See pages 35-6 above. 6. Greek Thought 56.

This reference hardly enables us to determine Aristotle's meaning, and were Cherniss[1] correct, that this is the only place where Mimesis is applied to the Pythagoreans, one might despair of reaching a decision. But Ross[2] has referred us to 985b33, and he is right. For Aristotle has given a fairly full account of what he understood by Pythagoreanism in A.v, and he would hardly omit from that account all reference to this tenet, and introduce it without explanation here, where he begins to set out the resemblances and differences between Platonism and Pythagoreanism, which to a certain extent was the purpose - at any rate one of the purposes - of the account of Pythagoreanism in A.v.

Things modelled on Numbers: We find, then, an anticipation of this Imitation, μίμησις, in 985b32-6a1: "Since, then, all other things seemed in their whole nature TO BE MODELLED ON, ἀφωμοιῶσθαι, Numbers, and Numbers seemed to be the first things in the whole of Nature...." Now that this is what Aristotle had in mind when in 987b 11-12 he talked of Imitation, μίμησις, appears from the Greek. This word is a derivative of the verb μιμεῖσθαι, 'to imitate or copy' and in 985b32-6a1 ἀφωμοιῶσθαι comes from ἀφ-ομοιοῦν, 'to make like'. Literally, then, since it is the perfect passive infinitive, this word means 'to have been made like', and if sensible things 'have been made like' Numbers, they are in fact 'imitations' of Numbers, and Numbers are separate - not as patterns, but as groups of things.[3] This hardly advances the solution; but a further examination of the context of this passage brings us to the heart of the matter. For this sentence refers back to a fuller statement, similar in expression, but elaborated by an important parenthesis.

The example of Justice: This is 985b26-31: "Since of these principles Numbers are by nature the first, and in Numbers they seemed to see many resemblances, ὁμοιώματα, to the things that exist and come into being - more than in Fire and Earth and Water (such and such a modification of Numbers being Justice, another being Soul and Reason, another being Opportunity - and similarly almost all other things being numerically expressible)...." Again, 'resemblances', ὁμοιώματα, is derived from the same verb as ἀφ-ωμοιῶσθαι. Therefore, we are justified in turning to the parenthesis here for the source of Aristotle's statement that things imitate Numbers. This means in effect a collection of passages where certain modifications of Numbers are attributed to Justice, etc. And the most obvious of these is in the recension[4] of parts of book A, viz. book M, where we have M.iv.1078b21-3, much to the same effect;

1. Aristotle's Criticism of Pre-Socratic Philosophy 392, and Aristotle's Criticism of Plato 193. 2. Aristotle's Metaphysics I.163 ad 987b11. 3. Pages 35-6 above. 4. See Appendix.

"The Pythagoreans had before this treated of a few things,[1] whose definitions - e.g. those of Opportunity, Justice or Marriage - they connected with Numbers."

985b26-31, our immediate source for Aristotle's conception of Imitation, illustrates the resemblances which the Pythagoreans saw between things and Numbers by certain specific examples, among which is Justice. That is as far as the passage goes. But 1078b21-23 connects the attribution of Numbers there hinted at explicitly with the definitions of certain things, among which is Justice. Hence, to understand what Aristotle meant by Imitation, it is necessary to discover what was the Pythagorean definition of Justice - this one example will suffice - and then to see in what way this definition was or could be connected with Numbers.

Now in Nicomachean Ethics 1132b21-3 the Pythagoreans are said to have defined Justice without further qualification as Reciprocity. This is explained in Magna Moralia 1194a29-31 thus:"Reprisal is a kind of justice, but not in the sense that the Pythagoreans meant; for they thought it was just that whatever one did that same thing one should suffer in return." The Pythagorean definition of Justice, then, was Reciprocity in the sense that whatever one did one should suffer in return. Now the connection with Numbers is given in Magna Moralia 1182a11-14:"Pythagoras was the first to undertake to speak about virtue, referring the virtues to numerical relations. But in this he erred, for Justice is not the equally-equal Number." That is, as Ross[2] has explained it, Justice is to treat another in the same way as he has treated you - Reciprocity - and as Number is the simplest and most intelligible reality, the first thing of which this can be predicated is 4 - the equally-equal as being twice two - the first product of two factors that treat each other in the same way. With this in mind, let us return to the original source.

In both 985b32-6a1 and 985b26-31, besides the statement that things were modelled on or resembled Numbers, it is said that Numbers are by nature the first of all things. This is the reason why Numbers and not anything else were connected with the definitions of all other things. Hence, these passages could be paraphrased somewhat as follows: It was supposed that all things could be brought into a connection with Numbers similar to that which was actually done only in the case of some few concepts, such as Justice.

1. Part from the list being slightly different from that quoted before, it is remarkable that Aristotle here says "a few things", whereas he had before said "almost all other things". Perhaps in M.iv Aristotle minimises the achievement of the Pythagoreans since he is here concerned with showing that Socrates' contribution was the definition, which the Pythagoreans anticipated only in a few cases. But it seems to me that these expressions are not really inconsistent - the Pythagoreans SAID that almost all other things were numerically expressible, but IN PRACTICE they connected definitions with Numbers in only a few casss.
2. Aristotle's Metaphysics I.156 ad 987a22.

For this, being defined as Reciprocity, in the sense of one treating another in the same way, was connected with the number four, which as the equally-equal, that is, the product of two factors which treat each other in the same way, was also an example of Reciprocity. Number was selected in this connection because it was the first of all things, so that as the first ἀντιπεπονθός it was THE ἀντιπεπονθός .[1] It is this resemblance which the Pythagoreans affected to see between things and Numbers that Aristotle calls Imitation.

Their Method of Definition: Now this is precisely the method of definition described by Aristotle to the Pythagoreans in 987a20-b: "Regarding the question of Essence, they began to make statements and definitions, but treated the matter too simply. For they thought that the FIRST SUBJECT of which a given definition was predicable was the substance of the thing defined, as if one supposed that the 'double' and the '2' were the same because 2 is the FIRST THING of which 'double' is predicated." And this takes us forward to the last step, that, as connected with the definition, Aristotle interpreted Number in the Pythagorean philosophy as the Essence. He says that "they thought (the Number) was the substance of the thing defined," but it is unlikely that the Pythagoreans used the word 'substance' or had any conception of what Aristotle meant by that. In other words, although Aristotle attributes to the Pythagoreans the conception of Numbers as the substances of things, it seems more likely to have been his own deduction in order to restate Pythagoreanism in terms of his own categories. And this brings us back to his interpretation of Pythagorean Number as the formal cause, touched upon on pages 36b-7 above. Let us justify this.

Number as the Essence. 987a20-b states that by the Pythagorean method of definition a number was made the Essence of the thing defined. When, then, in 985b26-31 he says that the Pythagoreans saw many resemblances in things to Numbers, our argument above indicates that he must have meant the connection of the characteristic of a definiendum with that Number as its Essence which displayed the same characteristic. But it is not clear how this can be described as the modelling of things on Numbers - Justice is not made reciprocal because 4 is reciprocal nor even in the same way: it would still have existed and have been what it is even if the Pythagoreans had been unable to count. Hence, it seems to me that it was not the Pythagoreans who said that things exist by Imitation of Numbers. If, then, Aristotle says so, this must be his own interpretation of Pythagoreanism. However that may be, we may ask how he can conceive this method of definition as Imitation. The answer lies in his own conception of Essence as the substance of a thing, its formal principle, that which determined its characteristic nature and

1. See previous page, note 2.

appearance. Thus, when he says that the Pythagorean definitions were an anticipation of his own formal principle, the Essence, it means that he is interpreting such Numbers as 4, in the case of Justice, as its Essence, just as in the passage last quoted 2 is the Essence or substance of 'double.'

Therefore, we conclude that the Pythagoreans defined, to use a specific example, Justice as Reciprocity, and then connected this definition with a Number, the Number 4 which is the first case of Reciprocity. Because Aristotle sees anticipations of his formal cause in the definition, regarding the Essence of the definiendum as its form he deduces that the Pythagoreans anticipated him by making Numbers the Essences of things. And because he thinks that things could be regarded as modelled on their Essences, he compares HIS INTERPRETATION of Pythagoreanism with Platonism in 987b11-12, saying that the Pythagoreans made things exist by Imitation ofNumbers

This interpretation of what Aristotle meant by Imitation is not without precedents. Thus, Cherniss[1] states that Aristotle's evidence that Pythagorean Number is the cause of substantiality was meant to show an anticipation of his own formal cause, and this leads to Imitation. Also Milhaud,[2] that Mimesis has a special sense as the external reflection of an internal reality andthis is what Aristotle calls the formal cause. Finally, Ross,[3] that the Pythagoreans recognised the formal cause, but this was marred by the supposition that the first thing to which a definition applied was the Essence, and Aristotle calls this relation of thing to formal cause Mimesis as in 987b11-12, which he connects with 985b32-33,that all things are made like Numbers.

3. "The elements of Numbers are the elements of all things."

We have seen above[4] that whereas Burnet[5] dismissed the tenet that the elements of Numbers are the elements of things as only Aristotle's way of expressing that things are Numbers, he might just as well have argued that the tenet, that things are Numbers, was only Aristotle's way of expressing that the elements of Numbers are the elements of things. Indeed, our examination of the evidence does not give any grounds for believing that the Italian philosophy made much use of the identity of things and Numbers. The same objection applies to Cherniss' remark[6] that this tenet is Aristotle's recasting owing to his inability to understand things as Numbers. But what is there difficult to understand in this, when, as Cherniss interprets it, it means nothing more than that bodies consist of aggregates of points having position? This is no more abstruse than Atomism, which is one of the simplest of all philosophical systems. Elsewhere he

1. Aristotle's Criticism of Pre-Socratic Philosophy 46.
2. Les Philosophes Géomètres de la Grèce 105-6.
3. Aristotle's Metaphysics I.147 ad 986a17.
4. Page 34. 5. Early Greek Philosophy 333.
6. Aristotle's Criticism of Pre-Socratic Philosophy 389-390.

says[1] this tenet is Aristotle's deduction since he reconstructs why the Counter-earth was invented - viz. to make up the number of the heavenly bodies to 10. But assuming that this was Aristotle's reconstruction, it was made from the conception of theheavens as a Number, as Aristotle himself says, and so far from rendering suspicious the tenet that the elements of Number are the elements of things, casts doubt rather on the alleged identity of things and Numbers! The passage here alluded to, however, will afford a suitable starting-point for our investigation.

The identity of elements as the ontological ground of Imitation

985b26-6a3: As this passage requires careful analysis, I shall reproduce it with the addition of tabular numbers to facilitate reference to its parts and to elucidate the relationship of the parts to one another. It consists of two separate sets of premises and two conclusions, which can be set out as follows:

First part:- i)"Since of these principles Numbers are by nature the first;

ii) and in Numbers they seemed to see many resemblances to the things that exist and come into being;

iii) since, again, they saw that the modifications and the ratios of the musical scales were expressible in Numbers.

Second part:- a) Since, then, all other things seemed in their whole nature to be modelled on Numbers,

b) and Numbers seemed to be the first things in the whole of nature.

Conclusions:- 1. The elements of Numbers are the elements of all things, 2. and the whole heavens are a musical scale and a Number."

Now premiss iii, unlike the other two, is not repeated in the second part, and leads to conclusion 2. One gets a very neat syllogism by taking iii as major premiss, the first portion of the 'conclusion' as minor, and the other part as the conclusion proper, thus:-

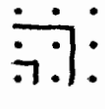
The musical scale is a Number,
The heavens are a musical scale,
Therefore, the heavens are a Number.

This will be discussed when the Italian astronomy comes under review, but the above comclusion is necessary in order to clear the ground for the rest of the passage. If, then, premiss iii and conclusion ii 2 are removed as a syllogism complete in itself, what is left? Two premisses repeated and one conclusion. Thus, premiss i is repeated by premiss b, premiss ii is repeated by premiss a, and conclusion 1 must have been intended by Aristotle to complete the argument. This, it is true, cannot easily be recast into syllogistic form, but the line of reasoning is clear just the same. We have seen that the priority of Number and what Aristotle calls the resemblance

1. Op. cit. 45.

of things to Numbers refers to the Pythagorean method of definition whereby Numbers were made what Aristotle calls the Essence of things. Because of this, then, they supposed that the elements of Numbers were the elements of things. But it does not follow that because things resemble Numbers they must have the same elements. And yet the argument points to the Pythagoreans having sought to find an objective basis for this relation by connecting the elements of Numbers with those of things. I suggest that Aristotle's argument here suffers from over-compression. The line of argument suggests that the Pythagoreans held that both things and Numbers had elements and in order to account for the said resemblances, they deduced that the elements of each were, if not identical, i.e. one by number, they were at least one by analogy. Thus, things were ultimately constituted from the elements Limit and Unlimited, and Numbers from the elements Odd and Even; because things resembled Numbers, e.g. both Justice and the Number 4 were Reciprocity, these two sets of elements were made one by analogy - the Odd was analogically the Limit, the Even the Unlimited. So 986a17-19:"They Hold that the elements of Number are the Even and the Odd, and that of these the latter is limited and the former is unlimited." Again, 990a9-10: "Limit and Unlimited and Odd and Even are the only things assumed", with which compare 987a13-14:"They said that there are two principles." Hence, it seems definite that the Pythagoreans, according to Aristotle, sought an objective basis for the resemblances between things and Numbers in an analogical identification of their elements.

The identity of Odd with Limit, etc. Further, they seem to have attempted to justify this identification from the figurate construction of Numbers according to Physics 203a10-16, but this offers some difficulties in interpretation. The passage reads:"The Pythagoreans identify the Infinite with the Even. For this, they say, when it is cut off and shut in by the Odd, provides things with the element of Infinity. An indication of this is what happens with Numbers. If the gnomons are placed around the one, in the one construction the figure that results is always different, in the other it is always the same. But Plato has two Infinites, the Great and the Small." While the reading is difficult, the sense is plain enough: there is little doubt that it refers to the configuration of square and oblong numbers, which are the sums of the successive odd and even numbers. Placing the gnomon around the one refers to 3, 5, etc./ units being placed in L-shape around 1 unit, and the sides of the resultant square formed by the units thus disposed are always equal in length, i.e. in the number of units on each side. For example, the sum of 1, 3, and 5 (= 9) is represented thus-



In the other case, where gnomons are placed not around one but around two units, being the sum of successive even numbers, such as 4, 6, 8,

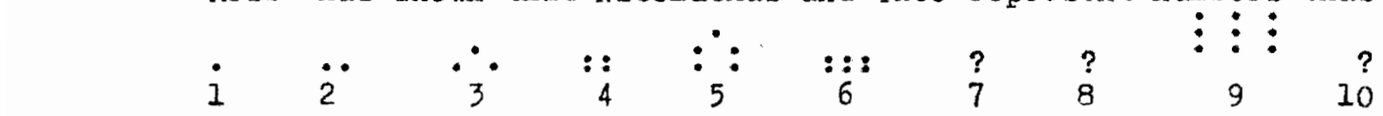
etc., what results is an oblong whose sides are of different length, i.e. have a different number of units, always varying in proportion. For example, the sum of 2, 4 and 6 (= 12) is represented thus-

This interpretation is the majority view, accepted by such names as Milhaud,[1] Cornford,[2] Robin,[3] Ross[4] and Tredennick,[5] as well as by Raven,[6] who however offers as the interpretation of the identity of Odd with Limit, not the constant ratio between the sides of the square in the case of the sum of successive odd numbers, but the fact that a line dividing the figure into halves passes through, and so is limited by, the central unit of the figure. This, however, does not agree with Aristotle's statement, as can be seen from the translation given above. A real difficulty, however, as Raven points out,[7] is that the whole figure is certainly not a demonstration of the identity of Odd and Limit, but only of each successive gnomon. In other words, the number resulting from the sum of 1 and 3 is 4, an even number; from the sum of 1,3,5 and 7 is 16, an even number, so that Aristotle ignores the alternate even numbers resulting from the sum of successive odd numbers.

If Aristotle is citing an actual Pythagorean example, the fault lies with the Pythagoreans, but it is possible that Aristotle has himself provided the example. As Cherniss[8] says, the Infinite as substance, shortly before the passage quoted, seems to be Aristotle's own deduction from Numbers not being separate, and if so, the equation of Odd with Limit may also be his deduction. This is highly problematical, but it does express a feeling of dissatisfaction with the example we are dealing with. I would rather say, however, not that the equation of Odd with Limit is his own deduction, but only that the example he gives in support of it may be his own example. There is a minority school of thought that feels that the true reason or illustration given by the Pythagoreans for this identity was that even numbers were set out 'with equal legs', ἰσοσκελής, e.g. 6 as ::: and odd numbers as 'limping', σκαληνός, i.e. with one leg longer than the other, e.g. 7 as ⁘ ∴ as is alluded to in Euthyphro 12CD, and is there connected with Odd and Even as the species of Number. So Heidel[9] and Zeller[10], which Milhaud thinks to be nonsense. Here the odd unit, especially if placed between the two rows, limits the 'flow'. I prefer this explanation because it suits the Pythagorean generation of Numbers better than the other example, as will appear below.

1. Les Philosophes Géomètres de la Grèce 114-7.
2. Plato and Parmenides 10. 3. Greek Thought 59.
4. Aristotle's Metaphysics I.148. 5. Loeb Metaphysics xvi, note.
6. Pythagoreans and Eleatics 192-3. 7. Op. cit. 189.
8. Aristotle's Criticism of Pre-Socratic Philosophy 17 note 68.
9. See Ross, op. cit. 149 and Loeb Metaphysics loc. cit.
10. Milhaud, op. cit. 113-4.

The strongest argument against this view is that there is no evidence that numbers as high as 8 or 10 were set out in this way,[1] which is true. But the defect in our evidence may be due to chance. Ross[2] has shown that Nicomachus and Theo represent numbers thus -



Here 4, 6 and 9 tally with the formation of square and oblong numbers, it is true, but all the numbers here attested, except for 9, tally as well with 'equal-legged' and 'limping' numbers.

There the matter must rest, except for one highly conjectural argument. There is a close resemblance in the Physics passage quoted to Physics 213b23-28, which is universally ascribed to the early Pythagoreans, where the Void is inhaled and then serves to distinguish the natures of things, and to Metaphysics 1091a17-8, where the nearest part of the Unlimited is constrained and limited by the Limit. These passages will be dealt with when we come to treat early Pythagoreanism. But with this, compare part of Physics 203a10-6 above: "For this...when it is cut off and shut in by the Odd, provides things with the elements of Infinity." And yet the end of the passage quoted echoes 987b26 and 33. Is it possible that the early Pythagoreans, holding the inhalation of the Void, used square and oblong numbers to connect things with Numbers, while the Italians preferred a method of setting out numbers more in keeping with their method of generation of numbers - i.e. set out as isosceles and scalene - and Aristotle either compresses the two schools into one account in Physics 203a10-6, or intends to illustrate the Italian identification of the elements, but due to his context dealing with the earlier school cites the wrong example.

<u>These three tenets are not inconsistent</u>. However that may be, it seems then that the three tenets referred to on page 34 above are not at all inconsistent. The fundamental tenet is that things and Numbers each have elements, and these elements are analogically the same - the Odd is the Limit, and the Even is the Unlimited. This analogical identification of the elements was the basis or objective ground of the resemblances noted or imagined between things and Numbers, which, arising from the Pythagorean method of definition by attributing what Aristotle calls the Essence to the first case exhibiting the quality defined, is interpreted by Aristotle as Imitation, because he regards things as imitating their Essence. Number was phenomenal, but the converse did not hold good: things were not really Numbers but only resembled Numbers, which is explained by the 'identity' of their elements.

1. Raven, op. cit. 191.
2. Aristotle's Metaphysics II. 494 ad 1092b10.

c) The Stages of Generation.

The One. Starting from the generation of the One and Numbers, the elements in this case are the Odd and Even. That is, while the fundamental elements are the Limit and the Unlimited, the Odd and the Even are their exemplification in the sphere of Number.[1] The first product[2] of the Odd and Even is the One according to 986a19: "The One proceeds[3] from both of these (the Odd and the Even)," and 1091a15-18: "For the Pythagoreans say plainly that when the One had been constructed, whether out of.....elements...." This latter passage was quoted on pages 29-30 above, where we argued that it bore witness to two (or more) Pythagorean schools, one of which - the part quoted here - belongs to the Italian school, as dealing with elements. But it is difficult to envisage how the One can be composed of such elements as the Odd and Even, and this may have been no more than a generalised deduction from the conception of the One as both Odd and Even, since it made odd numbers even and even numbers odd, in accordance with the surmised setting out of numbers as isosceles and scalene, referred to on pages 44-5 above - viz. when added to each respectively.

In 987a17-19, however, there is an apparent contradiction to this, for the One is here not a product of Odd and Even, nor of Limit and Unlimited or Infinity,[4] but seemingly acts as Limit on the Unlimited: "Infinity itself and Unity itself were the substance[5] of the things of which they are predicated." So Cherniss,[6] taking this to be a tacit identification of the One with the Limit, uses it as evidence that the earlier passage where the unit is derived from both Odd and Even is Aristotle's own deduction and not a report of a Pythagorean tenet. But I believe there is a simple explanation of this apparent inconsistency, which can only be understood after the examination of the evidence for the generation of Numbers.

Numbers. 986a20-1, that Number proceeds from the One, is vague, but that two elements are here concerned is indicated not only by the previous mention of the elements of Number and by the requirements of the system in which everything is constructed from two elements, but also by 987a17-19: "Infinity itself and Unity itself are the substance of the things of which they are predicated. This is why NUMBER is the substance[7] of all things." This implies that certain things are derived from Infinity or the Unlimited,[4]

1. Cornford, Plato and Parmenides 6. 2. Taylor, Plato the Man and his Work 508 note, and A Comentary on Plato's Timaeus 31-2.
3. Cornford, Classical Quarterly XVII.3 note 1, translates τὸ δὲ ἓν ἐξ ἀμφοτέρων εἶναι τούτων as "The One consists of both of these", but Raven, op. cit. 10 & 22, points out that this is wrong and should be, "The One is derived from both of these."
4. Both Infinity and Unlimited are the same in Greek - τὸ ἄπειρον.
5. The meaning of 'substance' in this passage is elaborated on pages 82-3 below. 6. Aristotle's Criticism of Pre-Socratic Philosophy 45. 7. Substance here must mean the substrate that underlies a thing. 'Substance' has many meanings for Aristotle, see 1028b33-9a4.

and Unity or the One, τὸ ἕν . Since, then, 986a20-21 states that Numbers come from the One, it seems that the 'certain things' are Numbers, and 'Numbers as the substance of all things' implies that the elements of Numbers were the elements of all things. This means that the elements of Number were the One and the Unlimited, but they were previously[1] supposed to be the Odd and Even, which were sub-types of the Limit and the Unlimited. Is Cherniss right that Aristotle contradicts himself in equating the One with the Limit, yet elsewhere making the One the product of Limit and Unlimited? I do not think so: I believe the apparent contradiction arises from conceiving the Limit as a substance, something tangible. But it is really only a name for whatever, in any particular case, bounds or delimits some opposing principle which lacks determination and this gives rise to the sensible thing in question. The One is not the product of some chemical action between or even mechanical mixture of two substances, one of which is called the Odd or the Limit, the other being the Even or the Unlimited. That is not only nonsense but a contradiction in terms, for then two would be prior to one. The One is, but because it partakes of the nature of both Odd and Even, as stated above, it was vaguely conceived as a product of these two elements which had no prior existence as separate entities. Each Number similarly was a product of two elements, but these elements could now have separate existence as each was a unity, and one of these elements could be regarded as a limiting factor and so called the Limit, and the other, as that to which the Limit was added, was the Unlimited. But the Limit and the Unlimited, again, were not two individual substances, but simply the characteristic displayed by each in its rôle of element constituting the product, the particular number in question. What these were in any particular case seems to be indicated by the conception of the One as both Odd and Even. The Even, then, according to the Pythagorean method of definition, was 2, the first even number, and from the One and Even (≡ Unlimited) comes 3, the first odd number, and so THE Odd. Here the One acts as the Limit, thus explaining Aristotle's statement that Numbers came from Unity and Infinity. The One then acts as Limit with the Odd to give 4, and so on. Thus, Number comes from the Odd and the Even as alternate substrates or Unlimiteds, with the One acting in both cases as the Limit.[2] This implies the generation of Numbers and their configuration along the lines suggested by Heidel,[3] thus . : :. :: ::.

1. See Page 43 above.
2. Much to this effect is Raven, Pythagoreans and Eleatics 135-7; but I cannot agree with Ross, Aristotle's Metaphysics I.149-150.
3. See pages 44-45 above.

Magnitudes. The next stage of generation is that of geometrical figures. So 990a13-15 :"If one granted them that spatial magnitude consists of these elements....", but this is too vague to help much, so that we have to turn to some anonymous passages in order to reconstruct Aristotle's conception of the generation of figures according to the philosophy of the Italians. Ross ascribes to the Pythagoreans, 1036b8-13 :"Some people already raise the question in the case of the circle and the triangle, thinking that it is not right to define these by reference to lines and the Continuous, but that all these are to the circle or the triangle as flesh and bones are to man...., and they reduce all things to Numbers, and they say that the formula of the Line is that of two". This seems to refer to our school because it constructs geometrical figures from elements, reduces all things to Numbers, agrees sub finem with the method of definition discussed at the end of Metaphysics A.v - for the 'formula of the Line was that of 2' was doubtless understood in the sense that 2 was the first thing extended in one dimension[1] - and finally this doctrine is associated with the Platonists (cp. A.vi.1) since the quotation continues:"Of those who assert the Ideas, some make 'two' the Line-itself and others make it the Form of the Line." The passage, 1036b8-13, then, implies that the Line was the Continuous, sc. as Unlimited, bounded by two points, sc. as Limit, that the Surface (for the circle or the triangle are only exempli gratia) was the Continuous bounded by Lines, and, by analogy, that the Solid was the Continuous bounded by Planes. Such is Raven's interpretation,[2] and he cites in corroboration 1090b5-8,[3] an anonymous view, not identified by Ross in his commentary, but its general agreement with the tenet established above marks it as belonging to the same school of thought.

This runs: " There are some who, because the point is the limit and extreme of the line, the line of the plane, and the plane of the solid, think there must be real things of this sort." So also 1028b16-8 :"Some[4] think the limits of body, i.e. surface, line, point, and unit, are substances, and more so than that body or the solid." The reason for such a view is apparently given in 1017b17-22, where Aristotle discusses the various modes of interpreting the relation of Before and After :"The parts which are present in such things, limiting them and marking them as individuals (sc. are prior),as the body is by the destruction of the plane, as some[4] say, and the plane by the destruction of the line; and in general Number is thought by some to be of this nature; for if it is destroyed, they say, nothing exists, and it limits all things." That is, the

1. So Alexander, quoted by Raven, op. cit.146-7. That this was the Italian school is further corroborated by 1036b17-9, where one thing is many, as in 987a27.
2. Op. cit. 106-9, cp. Classical Quarterly N.S.1. 148.
3. But see Bywater and Cherniss ad loc. on page 13 above.
4. Listed as Pythagorean by Ross, Aristotle's Metaphysics, Index.

line is more real than the plane because by its destruction the plane is also destroyed; the plane is prior to the solid because by its destruction the solid is destroyed. Therefore, the ultimate reals are not bodies, but points, lines and surfaces. It is to these that 1028b5[1] refers:"For it is this (i.e. substance) that.... some[2] assert to be limited in number..."That is, the Milesians have but one substance - Water or Fire or Air-, the Atomists have an unlimited number (atoms), but the Pythagoreans have only the limited number - Numbers, points, lines and planes.

Geometrical figures, then, were composed out of the Continuous, representing the Unlimited, and Points, Lines, Planes, in the case of lines, surfaces and solids respectively, representing the Limit. It is the relationship of Before and After that connects all these, making them types of the Limit.

Raven[3] sees this theory also in the allusion to Eurytus in 1092b8-22, but this will be more conveniently discussed in part II below, since for its interpretation it depends on the notices of the scholiast. We might note here, however, that the critics differ in respect of the second view here alluded to, that is, Numbers as ratios. Cornford assigns the two views (Eurytus and the ratios) to two successive Pythagorean schools, but Raven[4] demonstrates that Aristotle's language implies they are contemporary; however that may be, he errs in assigning both views to the same school,[5] for Cherniss[6] is undoubtedly correct in assigning the second (ratios) to Empedocles, as does Ross in his translation.

This generation of spatial magnitudes seems to be the doctrine of the Tetractys,[7] of which there is no definite evidence in Aristotle's account of the philosophy of the Italians except in respect of one point. 986a8-9, "The number 10 is thought to be perfect and to comprise the whole nature of Numbers," has been explained by Raven[8] to mean that 10 embraces the whole nature of Numbers because 1+ 2+ 3+ 4 = 10, which is used to symbolise the Tetractys as a triangle of Numbers, thus -

From Solid to Body. Just how the transition was effected from geometrical solid to sensible body we are not told, but it would seem from Aristotle's criticism that solids were tacitly assumed to be the same as bodies. So 990a13-15:"If one either granted them that spatial magnitude consists of these elements (Limit and Unlimited and Odd and Even), or if this were proved, still how would some bodies be light and others have weight?"

1. Ross, Aristotle's Metaphysics II.162 ad 1028b16, refers us to 1002a4, that body is less of a substance than surface, this than line, etc., since bounded by it. 2. Listed by Ross as Pythagoreans
3. Classical Quarterly NS 1.147. 4. Pythagoreans and Eleatics 51.
5. Op. cit. 58-61. 6. Aristotle's Criticism of Pre-Socratic Philosophy 240 n.105. 7. See Raven, op. cit. 158-161.
8. Op. cit. 140f.

This implies that sensible body was not distinguished from geometrical solid, or at least that no distinctive characteristics were assigned to perceptible bodies over and above their shape, and as the solid was composed of the Continuous bounded by Planes, so apparently was perceptible body also. Hence, "To judge of what they assume and maintain, they are speaking no more of mathematical bodies than of perceptible," 990a14-16.

To the same effect, apparently, is 990a16-18:"Hence, they have said nothing whatever about Fire or Earth or other bodies of this sort, ØI suppose because they have nothing to say which applies particularly to perceptible things." Raven[1] points out that the 'I suppose' shows that the statement is Aristotle's own deduction, based on the observation that they had nothing peculiar to say of sensible things, as just stated. So Ross[2] explains:"Since the Four Roots are identical with geometrical figures, nothing distinctive is said about sensible qualities."

d) Harmonics and Astronomy. We return to the syllogism set out on page 42 above. This runs -

The musical scales are a Number;
The heavens are a musical scale;
Therefore, the heavens are a Number.

There is no other reference in Aristotle to explain the musical scales as Numbers, but it is common knowledge that this refers to the ratios of the octave, fifth and fourth being numerically expressible as 2:1, 3:2 and 4:3 respectively to the key-note. The 'modifications of the scales' being a Number in 985b31-32 seems to refer to the ratios between the corresponding notes of the modifications of the scales, to wit, the enharmonic, chromatic and diatonic forms of the scale. The heavens as a musical scale seems to refer to some form of the conception of the Harmony of the Spheres, but Aristotle is silent.

The whole arrangement of the heavens. In respect of the heavens as a Number Aristotle's evidence is fuller. We have two relevant passages. De Caelo ii.13.293a21-25:"At the centre (of the universe) they say is Fire, and the earth is one of the stars creating day and night by its circular motion about the centre. Further, they construct another earth in opposition to ours, to which they give the name Counter-earth." Metaphysics A.v.986a8-12:"As the Number 10 is thought to be perfect,...they say that the bodies which move through the heavens are ten, but as the visible bodies are only 9, to meet this they invent a tenth - the Counter-earth." These quotes illustrate their characteristic procedure. Because of the perfection of the Number 10, the Pythagoreans had somehow to find 10 heavenly bodies. At that time astronomy was still geocentric and the fixed

1. Op. cit. 153.
2. Aristotle's Metaphysics I.183 ad 990a15-16.

stars were usually regarded as a wheel or sphere enclosing the heavens; 5 planets were known as well as the sun and the moon. As this gave only 8 bodies, a ninth was found by regarding the earth as a star. Such were the nine visible bodies. In default of a tenth an invisible Counter-earth was postulated, making up the number to 10. Now we have seen[1] that Pythagorean Number was phenomenal, i.e. a number of phenomenal units, and this gives the sense in which the whole heaven is said to be a Number, 986a3, 986a21. The ten heavenly bodies are, in fact, the number 10.

But by removing the earth from its central position, some body had to be found to fill this post, for evidently the Pythagoreans could not endure a vacuum. This was filled by Fire, according to one of the above references, and the reason for this is given in De Caelo 293b2-4:"They hold that the most important part of the world, which is the centre, should be the most strictly guarded, and name it, or rather the Fire which occupies that place, the 'Guard-house of Zeus'." Here again we see the same concern with a priori considerations: the centre is filled with Fire, not because it was so in fact or because this could be deduced from observed phenomena, but because the most important part of a figure, the centre, must contain the most perfect Simple Body, Fire.

Its parts and attributes. Relevant to this discussion are 990a1, "They generate the heavens," and 990a20-21, "What happens in the heavens both from the beginning and now..." We have no further evidence in Aristotle how they generated the heavens, but one might conjecture that, as the heavens were a Number, the generation of the Number-series from one to ten was regarded as pari passu the generation of the ten heavenly bodies.[2] Raven[3] gives the Central Fire as the first thing generated, the One, then in order the Counter-earth, earth, moon, sun, 5 planets, and tenthly the Fixed Stars.

A last passage which refers to the structure of the universe is 990a22-29, which, as the above refers to the whole arrangement of the heavens, deals with the parts and attributes thereof.[4] It reads:"When in one particular region they place Opinion or Opportunity, and , a little above or below, Injustice and Indecision or Mixture, and allege, as proof, that each of these is a Number, and that there happens to be already in this place a plurality of the extended bodies composed of Numbers, because these attributes of

1. Pages 35-6 above. 2. Compare Raven, op. cit. 148:"Cosmogony and the generation of Numbers went parallel," and Cornford, Classical Quarterly XVII.5 and 10:"The generation of the heavens was confused with that of Numbers"/ 3. Op. cit. 169-172. But slightly different is Ross, Aristotle's Metaphysics II.484; also Robin, Greek Thought 64, cp. Cornford, Plato and Parmenides 20.
4. This passage seems to be an elaboration of 986a3-8:"All the properties of Numbers and scales which they could show to agree with the attributes and parts and the whole arrangement of the heavens, they collected and fitted into their scheme". See p.33 above.

Number attach to the various places - this being so, is this Number, which we must suppose each of these abstractions to be, the same Number which is exhibited in the material universe, or is it another than this?" This is obscure in the extreme, and all we can say with certainty is that, in accordance with their characteristic procedure these Pythagoreans associated certain regions of the universe with certain numbers, and then quite logically assigned to those same regions extended bodies having the attributes of the Numbers thus distributed. An ingenious explanation is that of Ross,[1] that these extended bodies are the regular solids corresponding to the traditional Roots, and were doubtless the tetrahedron, cube, octahedron, and isocahedron, which were associated either with the number of their surfaces or with the number of points bounding the whole figure, in accordance with their conception of the structure of magnitudes.[2] As the tetrahedron has both 4 surfaces and 4 bounding points it will serve as an example, but this is purely conjectural, as Aristotle does not make his meaning clear. Fire, then, as associated with the number 4, would be assigned to one region of the universe, not because it had been observed to be there so much as because that region was supposed to have some particular connection with the number 4; and this region would also serve as the seat for an abstraction such as Justice, whose Essence was 4. But how one region of the universe could be associated with one number more than another, or indeed with any number at all, and what significance it had to place extended bodies or abstractions in different regions, is quite incomprehensible.

e) Other References. This concludes the entire body of references in book A, and the others which are ascribed either to the philosophy of the Italians or to the 'so-called Pythagoreans'. Certain other anonymous or vague references have also been used where their relevance to the philosophy here discussed was fairly certain. To these may be added a few more, which are not, however, of any great importance. Such are 996a6-8, "Whether Unity and Being, as the Pythagoreans and Plato said, are not attributes of something else but the substance of existing things," which seems relevant on account of a verbal similarity to 987b22-4 and the connection asserted between these Pythagoreans and Plato. Shorter, but to the same effect, is 1053b11-13:"Whether we must take the One itself as being a substance (as both the Pythagoreans in earlier and Plato in later times)...", and the same notion seems to lie behind 1001a 10-12 :"Plato and the Pythagoreans thought Being and Unity were nothing else, but this was their nature, their Essence being just Unity and Being." These references bear out the One as a Substance,[3]

1. Aristotle's Metaphysics I.185-6 ad 990a26. 2. See pages 48-9.
3. See page 46 above.

i.e. as an element in the generation of Numbers and so indirectly of all other things, or else possibly in the sense of a concretum according to Aristotle's conception thereof.[1]

A similar reference, but dealing with the other element, is Physics 204a32-34, taken with lines 8-11:"It is impossible that the Infinite should be a thing which is itself infinite, separate from sensible objects. If the Infinite.....is itself a substance and not an attribute, it will be indivisible..... Thus the view of those who speak after the manner of the Pythagoreans is absurd.With the same breath they treat the Infinite as a substance, and divide it into parts." This would suit the early school, which will be dealt with presently, or may refer to the Continuous, which is the element of Magnitudes. Aristotle sees from a consideration of the nature of infinity that if it is a substance it will be indivisible; if divisible it cannot be a substance. The Pythagoreans may well have believed it to be a divisible substance - the Continuous or Air-Void - without realising that this was a contradiction in terms.

Summary of the Philosophy of the Italians.

Summarising what has been said above, the Italian philosophers were THE mathematicians of their day, and were so much dominated by their subject that they applied the principles of mathematics to the visible universe, going so far as to force their observations to fit their a priori theories by making gratuitous additions to the data where necessary. Number was for them always a number of things, and because their method of definition revealed to them many resemblances between things and Numbers - so at any rate Aristotle expressed his conception of their method of definition by which Numbers, as the first things in Nature, were made the Essences of other things - they accounted for this by postulating an analogical identity between the elements of Numbers, Odd and Even, and the elements of things, Limit and Unlimited.

Odd and Even were said to be the elements of Number, and yet these elements were also named Unity and Infinity (= the Even), because Number was generated by the addition of the One to 2 and again to the resultant 3 and so on. As 2 was THE Even and 3 THE Odd, in terms of their method of definition, the elements of Number were ultimately the Odd and Even; but as Number originated from 2, the Even, by successive additions of the One, it could also be said to be generated from the One and the Even, which latter was also the Unlimited or Infinity. Because the One, in this way, made odd numbers even and even numbers odd, it was said to be composed of both Odd and Even as partaking of the nature of both. The material element, so to speak, of Magnitudes was the Continuous, and this was limited by two points to give Lines, by lines to give Planes, and by planes to give Solids. Here the Continuous served as the Unlimited, and points, lines, planes, respectively, as the Limit,

1. See Met. 1028b33-9a4, dealt with on pages 82-3 below.

and were believed to be more real than bodies. They had no theories to account for sensible qualities, and hardly distinguished between the geometrical solid and the physical body. This makes it seem possible that they identified the Four Roots with four of the regular solids.

However that may be, the generation of Numbers was regarded as being also the generation of the Cosmos, since the Cosmos, in order to equate it with the perfect Number 10, had been deduced to have 10 bodies, by the addition of the Counter-earth to the visible stars. Then, as the heavenly bodies were generated in order, so the Number-series was unfolded, the completion of the 10 bodies of the Cosmos equalling the perfection of the Number 10, for 10 was just 10 bodies. This conception of the heavens as THE Number 10 seems to have been connected with the numerical expression of the notes of the scale, perhaps in order to account for or to allow of some conception of what is commonly called the Harmony of the Spheres.

Such was Aristotle's conception of the Philosophy of the Italians; what he believed of other Pythagorean schools will be dealt with next.

Section ii. 'Others of the Same School'.

a) Early Pythagoreanism.

Let us turn now to one of the two passages where a school of Pythagoreanism is referred to different from the Italian. This is Metaphysics 1091a15-18, where the assertion that the One is Seed is incompatible with the assertion that the One is compounded from elements, which occurs in the same line, as was pointed out above.[1] The relevant part of the passage runs as follows:-

The One as Seed. 1091a15-18:"There need be no doubt whether the Pythagoreans attribute generation to them or not; for they plainly say that when the One had been constructed...of Seed....., immediately the nearest part of the Unlimited began to be constrained and limited by the Limit. But since they are constructing a world. ...(we let them off from the present inquiry)"[2]. We have already shown[1] that this passage refers to a Pythagoreanism different from the Italian school, and that this was early is shown by the animistic view of Nature implied by regarding the One as Seed.[3] Hence, we arrive at this position: we have here evidence for a school of Pythagoreanism different from and earlier than the Philosophy of the Italians, which is charecterised by an animistic and not a mathematical view of Nature, interpreting the One as a Seed, and constructing the world by the constraining and limiting of the Unlimited by the Limit - so that the elements are Limit and Unlimited. This is made clearer by another passage.

Physics 213b23-28:"The Pythagoreans, too, held that the Void exists and that it enters the heaven itself, which as it were inhales it, from the infinite Air. Further, it is the Void which distinguishes the natures of things, as if it were like what separates and distinguishes the terms of a series. This holds primarily in the Numbers, for the Void distinguishes their nature." This refers to the same school as above, firstly because their conception of the One as Seed fits the notion of Breathing,[4] and secondly because this passage reveals the same animistic view of Nature as Inhaling and is further characterised as early by the tacit confusion of Void with Air - it at least precedes Empedocles' discovery of the air as a substance.[5] Thus, it seems that the 'constraining and limiting of the Unlimited' of the former reference is the same as the inhaling of the Void from the infinite Air here. Thus, the Unlimited is the Void conceived as, or rather not distinguished from, Air, and so is a substane.[6] But what is meant by distinguishing the natures of things and of Numbers is

1. Pages 29-30. 2. I cannot agree with Ross, Aristotle's Metaphysics II.483 ad 1091a15-18, that Aristotle's suggestion as to the mode of composition of the One may have been his own conjecture, since Aristotle says, "They PLAINLY say," see p.30.
3. I cannot accept Miss Freeman, The Pre-Socratic Philosophers, A Companion to Diels 254, that this means no more than that the Pythagoreans used the monad as the explanation of life.
4. Pythagoreans and Eleatics 47. 5. Diels 21B100. 6. P.53 note 1

not clear. However, if Aristotle's example of configurate numbers, square and oblong, be taken to have been mistakenly applied to the Italian school as suggested on pages 44-5 above, and to belong really to Early Pythagoreanism, it would suggest that Numbers were conceived as points set out on a ground, the Void, which thus separated and distinguished those points. So shortly before this example we read, in Physics 203a4-16, that :"What is outside the heaven is infinite," and "The Even.....when it is cut off and shut in by the Odd, provides things with the element of infinity," which is very close indeed to the procedure mentioned in the passages quoted above. Thus, both Numbers and things were conceived as points separated by the Void, and the implication is that the points were the Limit, the Void the Unlimited.

We can, then, summarise the above in tabular form:
Early Pythagoreanism held i) an animistic view of Nature, ii) conceiving the One as Seed, which iii) breathed in the Void. iv) Void was confused with Air, and v) was equated with the Unlimited. vi) This Unlimited was constrained and limited by the Limit, or was cut off and shut in by the Odd, and vii) distinguished the natures of things, conceived as composed of points separated and distinguished by the Void, and viii) distinguished the natures of Numbers which were set out geometrically as points on a background.

Units having Magnitude.

Now the conception of Numbers as figurate implies that their units, what were called 'points' above, had magnitude, and although none of the passages referring to this Early Pythagoreanism in which the One inhales the Void, has any reference to units having magnitude, and none of the passages citing units having magnitude can with any certainty be shown to refer to Early Pythagoreanism, the compatibility of the inhalation of the Void, which then separates the units of Number and of things, with the conception of the units of Number as having magnitude, makes it extremely likely that the two sets of passages referring to these tenets deal with one and the same school. So Raven[1] points out that spatial units fit in with the breathing in of the Void. Hence, we turn to the passages where the units of Number are said to have spatial magnitude.

A good starting-point is De Caelo 300a14-19: "The same consequences follow from composing the heavens of Numbers, as SOME[2] of the Pythagoreans do who make all Nature out of Numbers. For natural bodies are manifestly endowed with weight and lightness but an assemblage of units can neither be composed to form a body nor possess weight." With this compare Metaphysics 1080b16-21: "And the Pythagoreans also believe in one kind of Number - the

1. Pythagoreans and Eleatics 45 and 54.
2. This is a further recognition of differences among the Pythagoreans, see pages 29-30 above.

mathematical; only they say it is not separate but sensible substances are formed out of it. For they construct the universe out of Numbers - only not of Numbers consisting of abstract units; they suppose the units to have spatial magnitude. But how the first 1 was constructed so as to have magnitude, they seem unable to say." To this must be added 1080b31-34, which makes a back-reference to the latter passage:"All who say the One is an element and principle of things suppose Numbers to consist of abstract units, except the Pythagoreans; but they suppose the Numbers to have magnitude, as has been said before." That the first two passages refer to the same parties appears from the characterisation of these Pythagoreans common to both passages, as those who compose or construct the heavens of Numbers. What is meant by this is not clear unless it is only another way of saying that natural bodies are composed of Numbers, which seems likely. That the third passage belongs to the same philosophy is obvious from its back-reference to the second passage. Now by putting these three passages together we get some interesting information. This school says that the One is a first principle or element, and constructs their Numbers as having units with magnitude, which is as much as to say that their Numbers have magnitude. Next, sensible substances are formed out of this kind of Number - its being mathematical only means that it has units and is to be contrasted with the Academical Ideal Number, which was not usually the object of mathematics but its ground, and is not here relevant. Now the meaning that Aristotle assigns to this tenet, that things are composed of numbers, appears from De Caelo loc. cit - things, natural bodies, are assemblages of units.[1] Hence, we can add to the list on the previous page, that (=vii) things are aggregates of units; (=viii) that the units of Number have spatial magnitude; and ix) that the One was a principle and element.

That this cannot refer to the Italian school appears from the incompatibility of things as aggregates of units here with things as composed of the Continuous limited by points there; by the incompatibility of the elements of Numbers being the elements of things there with the virtual identity of things and Numbers here. For if things are aggregates of units, and aggregates of units are Numbers, things must be Numbers. Indeed, Physics 227a27-30 implies the identity of unit and point:"Hence, if as some say, 'point' and 'unit' have an independent existence of their own, it is impossible for the two to be identical: for points can touch, while units can only be in succession." This implies that these thinkers asserted the identity of units and points, agreeing with the description of things as Numbers, i.e. a number of units. Nor is it any objection that the Italians said the heavens were a

1. Compare Cherniss, op. cit. 389.

Number, while this school said the heavens were composed of Numbers: the two tenets are really quite different. The fact that there were supposed to be 10 heavenly bodies is enough to explain the heavens as a Number -10 -, but it may or may not have been composed of Numbers. There are a few other references dealing with units having magnitude and things as Numbers, but these I leave over for a later paragraph, as they require ~~xp~~ separate and detailed examination.

The Table of Contraries: The list of Contraries in Metaphysics 986a22-30 seems to belong to this Early Pythagoreanism, although this has been challenged. For example, Cherniss[1] thinks the Table may have been the work of Speusippus; Zeller[2] refers it to Philolaus; while Robin[3] thinks it belonged to the 'second generation' of Pythagoreans, by which he seems to mean a later school than the Early Pythagoreanism, and not just younger men of the Early School. There are, however, certain primitive traits in this list which make me favour Raven's belief[4] that the Table belonged to the Early School, and in any case it is clear, as will be explained presently, ~~xhxt~~ at least that Aristotle thought the Table early - and that is what most concerns this chapter. The passage reads as follows:

986a22-30:"Other members of the same school say there are ten principles -

Limit	Unlimited
Odd	Even[5]
One	Plurality
Right	Left
Male	Female
Resting	Moving[6]
Straight	Curved.
Light	Darkness
Good	Bad
Square	Oblong.

In this way Alcmaeon of Croton seems also to have conceived the matter, and either he got this view from them or they got it from him; for he expressed himself similarly to them." That we are dealing with another school than the Italian is explicit from what Aristotle says:"OTHER members of the same school", i.e. other Pythagoreans than the 'so-called Pythagoreans' mentioned earlier in the chapter. It cannot be shown that this was THE Early School, but that they were early appears from certain items in the list.

1. Op. cit. 391. 2. Referred to by Ross, Aristotle's Metaphysics I.150 ad 986a22. 3. Op. cit. 57-8. ~~xxxpxxxxx~~.
4. Op. cit. 11.
5. If our surmise is correct, that this list belongs to the Early School, this shows that Odd and Even belonged also to this school, and may have been identified by them with Limit and Unlimited by means of square and oblong rather than by isosceles and scalene numbers. See pages 43-5 above.
6. Cp. Physics 201b25-27:"The reason why they put Motion into these genera is that it is thought to be something indefinite, and the principles of the second column are indefinite."

Raven[1] has explained Male and Female, that the Male Limit implante the Seed in the Unlimited as the Female, which reveals both an animistic conception of Nature and a view consistent with the One as Seed, which has been assigned to Early Pythagoreanism. The Light and Darkness remind us of Parmenides' Way of Seeming, where it is possible that he had in mind Pythagorean categories.[2] But that Aristotle thought it early appears from his uncertainty whether Alcmaeon got the Table from the Pythagoreans or they from him, for he would hardly suspect that Alcmaeon was influenced by writers so near his own day as Philolaus and Speusippus. The concluding words of the passage in our text, omitted above, to the effect that Alcmaeon was a young man when Pythagoras was old, are suspicious but likely,[3] and point very clearly to Aristotle's belief that the Table may have been as early as the time of Pythagoras, and was at any rate not much later. Hence, I conclude that this Table was early and belonged, along with the One as Seed inhaling the Void and units having magnitude, to Early Pythagoreanism.

Now the chief interest in this list lies in one item only - the Good. Other references to the Good in the Table of Contraries I leave over for the moment and cite here only one -Nicomachean Ethics 1096b5-7:"The Pythagoreans seem to give a more plausible account of the Good, when they place the One in the column of goods, and it is them that Speusippus seems to have followed." This has difficulties. One could not say, in respect of the Table quoted on the previous page, that the items are listed in any particular order, and yet one would hardly call it a column of goods. This does not mean, however, that Aristotle is mistaken or that he is referring to something else and not this Table. One could justify most, if not all, of the items as being good rather than evil, which occur in the first column. Parmenides seems to have regarded Limit,One,Rest as good rather than evil; Odd and Square (if this refers to square numbers) as sub-types of Limit, might be thought to be good. In augury the Right was the lucky side. To a predominantly masculine society the Male was to be preferred. Straight naturally appeals to us rather than the Crooked. One might, then, call this Table a table of goods, and if the One was placed in the column of goods, it meant that it belonged to the first column, as shown on the previous page, so that the One was associated with the Good. But Speusippus identified the Good not with the One but with the Ten! I suggest that, as the Nicomachean Ethics is an early work, Speusippus at the time of composiion may have held the Platonic identification of the One with the Good often mentioned by Aristotle, and only subsequently changed his ideas by identifying it with the Ten.

1. Op. cit. 47. 2. This is dealt with in Part II, Ch.1.
3. So Ross, Aristotle's Metaphysics I.152 ad 986a29.

b) 'The Theologians'.

We have now dealt with two schools known to Aristotle. Now we come to a third, which Aristotle names the Theologians in Metaphysics 1091a34-b3. That this is a different school from Early Pythagoreanism appears mainly from the position of the Good in their Table of Contraries,[1] and that it was again different from the Italian philosophy rests on their having a common belief with the Early School in spatial units, which we showed above was essentially a different view of Nature from the Italian. There are three passages from the Metaphysics which deal with this aspect of the Good.

The Good.1091a34-b3:"The Theologians ~~agree~~ seem to agree with some of the thinkers of the present day (Speusippus), who answer the question (whether the Good is an element) in the negative, and say that the Good and the Beautiful appear in the nature of things only when that nature has made some progress. This they do to avoid a real objection which confronts those who say, as some do, that the One is a first principle. The objection arises not from their ascribing Goodness to the first principle as an attribute, but from their making the One a principle, and a principle in the sense of element - and generating Number from the One."

1072b31-35:"Those who suppose, as the Pythagoreans and Speusippus do, that supreme Beauty and Goodness are not present in the beginning, because the beginnings both of plants and of animals are causes, but beauty and completeness are in the effects of these, are wrong in their opinion."

1075a36-37:"But the other school (apparently Speusippus and the Pythagoreans of the previous reference) does not treat the Good and the Bad even as principles."

Now these three passages make it clear that a) these Pythagoreans are followed in their view of the Good by Speusippus, b) that they do not make the Good an element but place it later in generation, and c) that they do this not to avoid making the Good a principle, but to avoid identifying the Good with the One, for the One was held to be a first principle. The Early Pythagoreans made the One a principle indeed, but virtually identified the Good with the One, since both appear in the same column of Contraries. Hence, these Theologians cannot be the same as the Early Pythagoreans. Now that these Theologians nevertheless held much the same conception of Nature in other respects as the Early School appears from Metaphysics 1090a21-35, where things as Numbers is brought into connection with Speusippus, and 1083b8-19, which fundamentally resembles this passage. These two passages have certain peculiarities which suggest a solution to the relationship between the Theologians and Early Pythagoreanism.

1. Miss Freeman, The Pre-Socratic Philosophers, A Companion to Diels 248 with note 1.

Two Difficult Passages.

1090a21-35:"Again, the Pythagoreans, because they saw many attributes of Numbers belonging to sensible bodies, supposed real things to be Numbers - not separable Numbers, however, but Numbers of which real things consist. But why? Because the attributes of Numbers are present in a musical scale and in the heavens and in many other things. (Speusippus is prevented from following this argument, and in any case objects of mathematics do not exist apart). Now the Pythagoreans in this point are open to no objection; but in that they construct natural bodies out of Numbers, things that have lightness and weight out of things that have not weight or lightness, they seem to speak of another heaven and other bodies, not sensible." This passage falls into two parts: an exposition of their doctrine, and Aristotle's criticism thereof. I analyse the argument as follows:

A. Premisses and conclusion on which they based their doctrine:-

i) Because they saw many attributes of Numbers belonging to sensible bodies,

ii) because the attributes of Numbers are present in a musical scale

iii) and in the heavens, iv) and in many other things,

∴ they supposed real things to be Numbers.

B. Aristotle's criticism:-

a) The Pythagoreans are open to no objection on this point,

b) but they are wrong in constructing natural bodies out of Numbers, because they make things that have lightness and weight out of things that have not weight or lightness, viz. Numbers.

As point iv obviously resumes point i, it can be left out of account. Then i,ii,iii and b closely resemble phrases from 985b26-6a3 and 990a14-16, thus:

i) In Numbers they seemed to see many resemblances to things....

ii) They saw that....the ratios of the musical scales were expressible in Numbers,

iii) that the whole heaven is a musical scale and a Number;

b) still how could some bodies be light and others have weight?

The resemblance is so striking that it seems almost inevitable to conclude that this passage also refers to the Italian school. But a serious difficulty is that here the premisses lead to the conclusion that things are Numbers, whereas in book A the conclusion is that the elements of Numbers are the elements of things; further, criticism b in book A is turned against the construction of bodies out of the Continuous and Planes, whereas here it is turned against the construction of bodies out of Numbers. Now either the doctrines here are those of the Italian school or they belong to a different school. If they refer to the Italians, either Aristotle contradicts himself or the verbal ~~xxxxx~~ differences hide an identity of thought[1] If they refer to some other school, then an explanation seems to be

1. See note on the next page.

required of the resemblances in their arguments.

I believe that a lot turns on the reference to 'in this point'. What is it that Aristotle finds unobjectionable? If one excludes that part of the passage which has been condensed as a parenthesis, one might think he refers to the supposition that real things are Numbers. But this is difficult because it is just this point that he criticises in the argument from weight and lightness. But if one takes the reference more particularly to the parenthesis, which contrasts Speusippus' separation of mathematical objects with the Pythagorean non-separation, it would seem that Aristotle does not object to the Pythag orean immanence of mathematical objects. Now if we bear in mind the distinction between phenomenal numbers and what we might call numerical things, which lay behind our argument on pages 35-36 above, this passage would mean that these Pythagoreans believed that Number was phenomenal, was not separate from things as Speusippus' Numbers were, and to this Aristotle sees no objection; what he objects to is the further tenet that things were constructed out of Numbers, and it is to the last that the premisses set out above refer, not to phenomenal number, which only comes in by reason of the parenthesis about Speusippus,. We have, then, this peculiar state of affairs, that by means of arguments similar to those of the Italians, this school arrived at the identity of things and Numbers, while the Italians deduced from the same premisses only the identity of the elements of Numbers and of things. These two tenets are so different that I cannot believe they amount to the same thing;[1] hence, this passage cannot refer to the Italian school unless Aristotle is but a very indifferent witness, and I would rather try to find an explanation for the similarity between the two arguments than accept the latter alternative. As for the criticism, it need not detain us. If the passage under consideration refers to some other parties than the Italian philosophers, then the criticism from weight does not refer to the construction of bodies from the Continuous and Planes, but, as Aristotle himself says, to the construction of bodies from Numbers. And why should Aristotle not use the same criticism against different tenets if it is applicable to both? And it is: for whether bodies be constructed of Planes or of Numbers, things having weight are being constructed from things which have it not.

Before attempting the promised explanation, however, it will be as well to examine 1083b8-19:"The Pythagorean version affords fewer

1. How far is it permissible to 'interpret' a reference? There is a possibility that "they supposed real things to be Numbers" ="Things resemble Numbers",so that Aristotle here draws an intermediate conclusion, going a step further in A.v by giving the ontological ground for this, which actually occurs as a premiss in A.v. He criticises the construction of things from Numbers in the sense of bodies out of planes, since the ultimate constituents are points= units? In this case, the passage would be recension of A.v and not evidence for the Theologians.

difficulties than those before named (Platonists), but in another way has others peculiar to itself. For not thinking of Number as capable of existing separately removes many of the impossible consequences; but that bodies should be composed of Numbers, and that this should be mathematical number, is impossible. For it is not possible to speak of indivisible spatial magnitudes; and however much there might be magnitudes of this sort, units at least have not magnitude; and can magnitude be composed of indivisibles? But arithmetical number at least consists of units, while thinkers identify numbers with real things; at any rate they apply their propositions to bodies as if they consisted of those numbers." Here again is a distinction between phenomenal number -"not thinking of number as capable of existing separately" - and numbers identified with real things -"that bodies should be composed of Numbers." Applying the previous quote, one could say Aristotle would not object to the former -"(This) removes many of the impossible consequences" - but the latter he thinks impossible. If Aristotle has in mind the same disjunction as in the previous passage, which I believe to be the case, we have here an explanation of the tenet that real things consist of Numbers. It turns on the units of Number having spatial magnitude -"Units at least have not magnitude". We saw in respect of the Early Pythagoreans that this tenet implied the identity of things and Numbers in the sense that things were composed of numerical units spatially extended. Therefore, Aristotle here criticises this, that such spatial magnitudes -units- could not be indivisible, or if there could be indivisible spatial magnitudes- e.g. Indivisible Lines - such could not be units of Number. In the former passage he criticises the tenet because it does not account for weight and lightness. Even if the former passage has been wrongly interpreted and really refers to the Italian school, as indicated in the note on page 62, nevertheless Aristotle is too explicit in 1083b8-19 for us to escape this conclusion, that here he is dealing with a school that constructed bodies out of spatially extended units.

<u>The Solution of the Difficulty: This is a Later School</u>.

Assuming, then, that 1090a21-35 deals with things as aggregates of units, how is it possible to account for the similarity in the argument to A.v? Confronted with the observations that many attributes of Number belong to sensible bodies, that the musical scale, that the heavens displayed the attributes of Numbers, why should not the Italians have concluded that the elements of Numbers and of things were the same, while the Pythagoreans of 1090a21-35 concluded that things were actually Numbers, as aggregates of units? There is no real difficulty if one supposes that, at some time, certain 'discoveries' were made, e.g. that Justice resembled 4, that the harmonic ratios were 2:1,3:2,4:3, and that there was some sort

of 'Harmony of the Spheres'. The Italian philosophers already constructed things and Numbers out of elements, and accounted for these new resemblances by assimilating the elements of things and those of Numbers; the others did not talk of things and Numbers as being constructed out of elements, but conceived things to be aggregates of units, and simply concluded that these attributes of Numbers displayed by things, scales and heavens respectively simply confirmed their doctrine that things were in fact Numbers. Indeed, there is a subtle difference in the otherwise so similar argument: the Italians spoke of things resembling or being modelled on Numbers but the school here in question said that the ATTRIBUTES OF NUMBERS were present in things.

Now since this school held the same doctrine about sensibles as the Early Pythagoreans, viz. that things were aggregates of units, were Numbers, they must be the direct descendants of that school. But the use of the premisses concerning the scales and the heavens in connection with the much later Italian philosophy - for they were roughly contemporaneous with the Atomists - indicates that these 'discoveries' were comparatively late - about a century after the time of Pythagoras. Hence, the school here in question would seem to be direct philosophical successors of the Early Pythagoreans, keeping their doctrines substantially intact, but of a much later date. This argues that this school was the Theologians who altered the original Pythagoreanism by separating the Good from the One, and this receives some measure of confirmation from the fact that both the Theologians and this school of 1090a21-35 were the pattern which Speusippus followed or tried to follow, up to a certain point. In this connection one might add an argument which is not drawn from Aristotle's evidence. The Early Pythagoreans did not commit anything to writing and seem to have been very secretive. It is then unlikely that Speusippus would have drawn on them as a source, but possible that he might have used either the writings or the tradition of later thinkers, called by Aristotle Theologians.

With the exception of a few unimportant lines, we have exhausted all references in the Metaphysics and Physics listed by Ross in his Commentaries on these works under the headings of Pythagoreans or Πυθαγόρειοι, and from my ascription of these either to the Italians or to other Pythagoreans, it can be seen that the Italian school, exceptfor the Table of Contraries of 986a 22-26, is the only Pythagorean school mentioned from book A to book I in the Metaphysics, and there after this school is not mentioned again except in the recension of A.vi concerning Justice, etc. - 1078b21-3, but we have one or two references to Early Pythagoreanism and the rest of the references refer to the Theologians.

Conclusion.

We have seen that Aristotle knew of at least[1] three Pythagorean schools. There was a philosophy which we have called Early Pythagoreanism on account of the primitiveness of its conceptions, and which believed that the One was a Seed implanted by the Male Limit in the Female Unlimited.[2] This One breathed in the Unlimited, which was the Air or Void - the conceptions were not yet distinguished - surrounding it, and this separated the One into units having spatial magnitude. What resulted was on the one hand Numbers, conceived as units set out in the Void, and on the other, things as aggregates of spatial units, for not merely were Numbers phenomenal but they were the very stuff of which perceptible bodies were made. The two primary elements, Limit and Unlimited, were conceived as displaying different aspects in different milieux, such as Male and Female[2] in the generation of the Cosmos, One and Plurality in the sphere of Number, Good and Evil in their religious aspect.

A continuation of this school, but which separated the One from the Good by placing the generation of the latter later in 'evolution', was that called by Aristotle the philosophy of the Theologians, which also held phenomenal number and units having magnitude.

A quite different school was that of the Italian philosophy, which sought the basis of the resemblances between things and Numbers not in an identity of the two, but in that of their elements.

Aristotle refers to the last as 'so-called Pythagoreanism' because, apparently, while they laid claim to the title of Pythagoreans, their differences from the main tradition, that of Early Pythagoreanism, and their spiritual heirs, the Theologians, were so great that he doubted their right to the appellation.

1. I say 'at least', because there are traces of a fourth school, which is characterised by the conception of the Line as a fluxion of a point, De Anima 409a4. I would have thought the context referred to Xenocrates, but Cornford, Plato and Parmenides 12, ascribes it to his post-Zenonic school, and Raven, Op. cit. 108-9, makes it contemporary with the Platonists, see page 9 note 11 above. Ross, Aristotle's Metaphysics II.414 ad 1077a24-30, sees ad loc. the Line as fluxion of a point, but leaves the ascription anonymous. If Pythagorean at all, it is surely contemporary with the Platonists as Raven says, and so is irrelevant to a study of Plato's relationship to the Pythagoreans, who ex hypothesi must have preceded him.
2. This contradicts the view of the relationship between the One, the Limit, and the Unlimited, given in part II. Chapter 1 below, where the One is original. Because of this I am not certain of the earliness of the Table, but it may be that Male and Female were cosmological gods laying the One as a sort of Orphic Egg from which the Limit and Unlimited emerged, thus reconciling the two bodies of evidence.

Chapter 2. ἡ Πλάτωνος πραγματεία .

General Remarks on the Relationship between Plato and the Italians.

On the face of it, there should be little difficulty in ascertaining what Aristotle meant in Metaphysics A.vi.1 by Plato's doctrine and its agreements with and differences from the philosophy of the Italians, since the rest of A.vi is ostensibly devoted to an account of that doctrine together with a list, in the course of the exposition, of the alleged followings and peculiarities. But two remarkable facts draw one's attention to there being something unusual in this account. Firstly, only the first part of the account reflects what is generally known to be Platonic from a study of the Platonic dialogues, and secondly, the list of agreements and disagreements enters, with one exception, at that point where the agreement with the dialogues seems to end. While the intention of this chapter is not to explain Platonism and its relationship to Pythagoreanism either as it was in fact or as it is presented in Plato's dialogues, but only to give an explanation of what Aristotle seems to have understood by it, because he is here presumably giving an account not of some figment of his imagination but of an objectively existent philosophy, it is unavoidable to offer some explanation of these two peculiarities in his account. But whether Aristotle was correct in his conception of Platonism and its relationship to Pythagoreanism will be the subject of another chapter: here we are solely concerned with what he understood by these two points, and this must be ascertained solely from his own evidence.

The key to Aristotle's meaning appears from two passages, one shortly after this A.vi and the other much later in the Metaphysics. The former, 988a18-20, runs as follows:"Our review of those who have spoken about first principles and reality and of the way in which they have spoken, has been concise and summary." This indicates that Aristotle makes no claims to be and had no intention of being exhaustive in his account of Platonism and the other philosophies dealt with, but his account dealt only with what was immediately relevant to his purpose. Hence, he states what is relevant to Platonism concisely and without distinguishing what he doubtless learnt from the dialogues, our source, and what he derived from some other source. And that he had some other source appears from 987a32:"For, having in his youth first become familiar with Cratylus..." As Ross[1] puts it:"From the dialogues we could not have known Plato's acquaintance with Cratylus, and this cannot be an inference of Aristotle's from the Cratylus and the Theaetetus - there is nothing to suggest it." Indeed, the dramatic date of the former dialogue is 431 B.C.,[2] before Plato's birth.

The second passage is 1078b9-12:"Now, regarding the Ideas, we

1. Aristotle's Metaphysics I.xlvii.
2. Taylor, Plato, the Man and his Work ~~x76x~~ 76.

must first examine the Ideal Theory itself, not connecting it in any way with the nature of Numbers, but treating it in the form in which it was originally understood by those who first maintained the existence of the Ideas." That this refers to Plato has been denied by Burnet[1], who says that 'those who first maintained the existence of the Ideas' were the Friends of Forms, and consequently Burnet is able to say that Aristotle knows of but one Platonic philosophy and says nothing anywhere of any change in Platonism.[2] But Field[3] has shown that this periphrasis does mean Plato, and as the continuation of the passage can be shown, from its close resemblance to the first part of A.vi, where Plato is named, to refer to Plato, the distinction, as Ross[4] points out, is not between two persons - the Friends of Forms and Plato - but between two forms of the Ideal Theory - the earlier and the later Platonism. Hence, Cherniss[5] is correct, that Burnet's hypothesis, that 'those who first maintained the existence of Ideas' are persons other than Plato, no longer requires consideration. This passage, then, is evidence that Aristotle knew of an earlier and a later form of Platonism,[6] since the form of the Ideal Theory there expounded agrees with the account of the first part of A.vi, as will be shown below, and this was the Ideal Theory as ORIGINALLY understood, the connection with the nature of Numbers being a later form of Platonism, generally referred to as the Doctrine of Idea-Numbers.

Applying this to the account of A.vi, that first section which has just been referred to is the earlier Ideal Theory, that of the dialogues in fact, and the later section which is not reflected in the dialogues is the later connection of Ideas with the nature of Numbers. That Aristotle runs two distinct phases of Platonism together without making any distinction between them, is explicable from his rematks in 988a18-20 that he has given only a concise and summary account. Therefore, it would appear that, with the one exception referred to on the previous page, his list of agreements and disagreements has little to do with the earlier Platonism. but only with the later phase which he has distinguished as a connection with the nature of Numbers in 1078b9-12.

A Distinction between Primary and Secondary Differences. Now a distinction must be made in respect of this list of agreements and differences. A glance at A.vi reveals that on the one hand Aristotle notes[7] that Plato differs from the Pythagoreans in such respects as separating Numbers and Forms, and on the other hand he states that

1. Greek Philosophy 313. 2. Burnet, Plato's Phaedo xlvi, cp. Taylor, A Commentary on Plato's Timaeus 29.
3. Classical Quarterly XVII.119-120.
4. Aristotle's Metaphysics I.xxxvi, and II.420 ad 1078b11.
5. Aristotle's Criticism of Plato 186 note 108.
6. See Field, op. cit. 123 and Ross, op. cit. II.421.
7. These points will be detailed and discussed below.

while Participation resembles Imitation it differs from it in name, and that while Plato resembled the Pythagoreans in making the Infinite an element, his Infinite differed from theirs in being a dyad. I call the former examples Primary Differences and the latter Secondary, since the nature and force of the difference can only be explained after the resemblances on which they are based have been dealt with. Hence, while the Primary Differences can be dealt with in isolation from the agreements, the Secondary Differences cannot be grouped under the same heading, but require separate treatment after the resemblances on which they are based have been discussed.

Method of Procedure. This indicates a threefold division of this chapter: i) we shall explain the Primary Differences and what Aristotle understood by these peculiarities of Platonism; ii) the Resemblances to Pythagoreanism and what Aristotle understood by that phase of Platonism which thus 'follows' Pythagoreanism; iii) the Secondary Differences and what Aristotle understood by them, and the reason for such deviations from Pythagoreanism.

The discussion of these threesubjects, as will be seen from an examination of the text and the rest of this chapter, will cover all that Aristotle has to say about Platonism in A.vi, and covers A.vi as far as 988a1, together with 988a10-14. The rest of A.vi does not concern us, as the first paragraph of the remainder consists of Aristotle's criticism of one of the secondary differences, 988a2-7, and we are dealing in this work not with Aristotle's criticism of Plato, but only with what he understood by it; the second paragraph deals with his interpretation of Platonism in the light of his four causes, but we are concerned only with his interpretation of its relationship to Pythagoreanism; finally, the last sentence, 988a15-17, deals with the relation of Plato's elements to Good and Evil, which, since it does not refer to any resemblance to or difference from Pythagoreanism noticed by Aristotle, but is related by him to his interpretation of the Causes, is again irrelevant to our investigation. We start, then, with Plato's Primary Differences.

Section 1. i. Τὰ δὶ καὶ ἴδια ἔχουσα .

List of Plato's Primary Differences. The primary differences, which according to Aristotle in A.vi distinguish Platonism from Pythagoreanism, are three in number, and are set out in 987b27-32: "(Peculiar to Plato) is 1. his view that the Numbers exist apart from sensible things, while they say that the things themselves are Numbers, 2. and do not place the objects of mathematics between Forms and sensible things. His divergence from the Pythagoreans in making the One and the Numbers separate from, and 3. his introduction of the Forms, were due to his inquiries in the region of definitions[1] (for the earlier thinkers had no tincture of Dialectic)." With 3 must be taken the account of the origin of Plato's conception of Ideas from Cratylus and Socrates in 987a32ff., since the word γὰρ,[2] 'for', introducing this account explains the reason for his peculiarities in general, stated in A.vi.1, and clearly refers to the introduction of Forms in particular. Further, difference 2 seems to be explained in 987b14-18, which will be discussed in its place. It will be convenient to start with the third difference.

3. The Introduction of the Forms. This primary difference from Pythagoreanism, the introduction of Forms, is elaborated in 987a32ff, which, by reason of the word 'for',[2] is explicitly given as the reason for this primary difference. Where the account begins is obvious, but where does it end? It must extend at least as far as the mention of the entities called Ideas, since this is the purpose of the account - to explain the introduction of Ideas - and yet can hardly run further than the explanation of the second difference, 987b14-18, since the passage in question (987a32ff.) deals only with difference number 3. But if the passage explaining the introduction of the Ideas be taken as 987a32-b14, that is, as far as the explanation of difference 2, this will include in the passage one of the resemblances with a secondary difference - Participation. This may or may not form part of the explanation of difference 3, but it certainly cannot be altogether excluded from this explanation since to do so would entail the exclusion also of the previous sentence, which mentions this same Participation, and it is in this sentence that the Ideas are first mentioned. As, however, that part of the sentence mentioning the resemblance between Participation and Imitation with the secondary difference of nomenclature must needs be dealt with separately, and does not concern the question of the primary difference here discussed, I propose quoting down to 987b14, but with the exclusion of what is irrelevant to the discussion of the primary difference here in question.

1. Ross, Plato's Theory of Ideas 163, explains that ὀκρίψις ἐν τοῖς λόγοις refers to Phaedo 100A, where λόγος = statements, but for Aristotle this word = definitions. 2. See pages 21-3 above.

987a32-b14: "For, having in his youth first become familiar with Cratylus and with the Heraclitean doctrines that all sensible things are ever in a state of Flux and there is no knowledge about them, these views he held even in later years. Socrates, however, was busying himself about ethical matters and neglecting the world of Nature as a whole but seeking the universal in these ethical matters, and fixed thought for the first time on definitions; Plato accepted his teaching, but held that the problem applied not to sensible things but to entities of another kind - for this reason, that the common definition could not be a definition of any sensible thing, as they were always changing. Things of this other sort, then, he called Ideas, and sensible things, he said, were all named after these, and in virtue of a relation to these; for it was in virtue of Participation that the Many have the same name as the Forms.[1].....Plato says that (things) exist by Participation.. ....But what the Participation....of the Forms might be,[2] they left an open question." In this we can distinguish the following tenets: i) Plato adopted Heraclitean Flux for sensibles - that 'all things are ever in a state of Flux'; ii) he also adopted Socratic definitions - he sought ' the universal and fixed thought on definitions'; iii) Plato made the object of the universal and definition exist not as a sensible in Flux, but as an entity of another kind, because there is no knowledge about Flux and there can be no definition of sensible things, as they are always changing; iv) these entities he called Ideas; v) sensible things are named after the Ideas and in virtue of the relation of Participation which they bear to Ideas of the same name as they, and vi) this Participation accounts for the existence of sensible things. This is a clear and consistent account except that no attempt is made to explain what was meant by Participation - here it is only a name, for 'what the Participation of the Forms might be, they left an open question.'

1. In this last clause I have followed Ross' translation given in Plato's Theory of Ideas 154. His earlier translation had been: "For the Many existed by Participation in the Ideas that have the same name as they." This was based on the MS reading: κατὰ μέθεξιν γὰρ εἶναι τὰ πολλὰ τῶν συνωνύμων (τοῖς εἴδεσιν). In Aristotle's Metaphysics I.161-2 he pointed out that to avoid an impossible use of the definitive genitive - 'the Many which are synonyma with the Forms' - he excises the bracketed words with Gillespie, Journal of Philology XXXIV.151. But in his Plato's Theory of Ideas 194 note 2, he thinks his former translation unlikely, and suggests that a copyist, taking τὰ πολλὰ as 'the majority' instead of 'the Many', inserted τῶν συνωνύμων as a gloss to complete the sense, and this later drove out ὁμώνυμα which is Aristotle's usual term in this connection. The original reading, then, was: κατὰ μέθεξιν γὰρ εἶναι τὰ πολλὰ ὁμώνυμα τοῖς εἴδεσιν, thus abandoning Gillespie's seclusion of τοῖς εἴδεσιν
2. A disputed reading in the text in this line will be discussed when these lines are dealt with later in connection with Participation and Imitation.

One point, however, is very noticeable: Aristotle couches this theory in his own terminology - for we cannot believe that Socrates used the word τὰ καθόλου ,'universals'; our sources rather indicate that his own word was οἱ λόγοι. But that this word correctly renders Socrates' meaning - for by it Aristotle understood 'the common term' - is clear enough from Euthyphro 6D: "Remember that I did not ask you to give me two or three examples of piety, but to explain the general idea which makes all pious things to be pious." Arist otle, then, states the theories of his predecessors - in this instance at any rate - in his own terminology, but seems to give a fair enough rendering of their theories. Naturally, we shall not find just this such an exposition of the origin of the Ideas in Plato's dialogues: Aristotle gives his own interpretation of this, just as he states that interpretation in his own terminology, but it is with Aristotle's interpretation of the origin of the Ideal Theory that we are here concerned, not with what Plato felt about the matter.

Now as is to be expected, there is no trace thus far of Pythagorean resemblance to Platonism - for the question of Participation being another name for Imitation will be dealt with below - and this is what we should have expected, since this account of the origin of the Ideas is given explicitly by means of two pointers as the reason for one of the most important of the Primary Differences from Pythagoreanism - it is introduced by 'for', which makes the passage an explanation of the preceding statement that there were 'peculiarities distinguishing Plato's doctrine from the philosophy of the Italians', and in 987b32, 'his introduction of the Forms was due to his inquiries in the region of definitions,' an obvious back-reference is made to Socrates' definitions as the basis of Plato's hypostatised Ideas. Therefore, whatever might have been the resemblance between Platonism and Pythagoreanism, the primary and fundamental difference between the two philosophies is the introduction into Platonism of Ideas, derived according to Aristotle from Socratic universals, which, as objects of knowledge, could not be in the world of Flux, but were separate. Hence, the Italians could not have held Ideas or any such entities separate from the world of sense. It remains to discover what Aristotle understood by or how he conceived these Ideas and the relationship in which they stood to sensibles.

What Aristotle Understood by the Forms:

1086a31-b12:[1] "Those who believe in the Ideas make the Ideas on the one hand universal and on the other separate and individual, because they did not identify Substance with sensibles; but they thought these were in Flux and those, the Universals, which they derived from Socrates, were apart from them. For if there were to

1. Slightly condensed.

be any substances apart from sensibles they must be separate, and as these were objects of knowledge and so universal, it follows that they held universally predicated substances." The general trend of this passage makes it clear that Aristotle means Plato, the plural perhaps indicating the inclusion of his early disciples, and it will be shown in the Appendix that the passage is in fact a recension of the account, or rather part of the account, in A.vi. The words 'it follows that' show that Aristotle is making a deduction from the nature of Plato's tenets, which is just what is required for our purpose - since we are seeking here what Aristotle understood by the Ideas. Otherwise the passage agrees with 987a32-b14 in all respects except one. It states i) sensible substances were in Flux, ii) the Universal was derived from Socrates, iii) they did not identify substances, which the context shows here meant objects of knowledge, with sensibles, but thought they were apart from them, were separate, iv) these substances are, by implication, Ideas, being so named in the first line of the quotation, and v) the naming of sensibles after Ideas is implicit in the conception of Ideas as universally predicated substances, since, as we said above, for Aristotle the universal predicate is the term common to a number of particular instances; but he is here silent as to Participation, i.e. the objective ground of such naming being the mode of the existence of sensible things. This point, then, will have to be separately considered below.

Again, Aristotle's own terminology obtrudes in his calling Ideas and not only Socratic λόγοι Universals. He does so, apparently, because they were objects of knowledge - 'as these were objects of knowledge AND SO Universals'. This seems to be a fair deduction from, or perhaps we should say a reasonable interpretation of, the fact that sensibles were named after their corresponding Idea, and that Ideas were postulated because sensibles could not be objects of knowledge since in Flux. Again, he calls them separate and individual, apparently because as separate substances Aristotle deduces they were individual. Hence, Aristotle conceives the Ideas as universally predicated substances, as individual or particular entities, which, as the common characteristic of a plurality of sensibles, were the objects of knowledge in those sensibles. As Aristotle himself believed in the existence of common characteristics as objects of knowledge, it is the individuality of the Ideas that distinguishes Plato from himself in his own opinion - that is, Plato's separation of the Ideas from the sensibles of which the Ideas were the common characteristic, and it is with this combination of universality and individuality that several criticisms of Aristotle's are concerned.

The first type of criticism turns on the individuality of the universal, which he argues is essentially the same as the individu-

ality of the sensible particular. So Aristotle's conclusion from the terminology used at the end of the passage quoted above, 1086 b11-12:"So that it followed that Universals and Individuals were almost the same sort of thing." For this reason, he affects to regard the Idea of Man simply as an eternal man in 1059a11-14 and 997b5-13. Since Aristotle himself held intelligible entities, such as the Prime Mover, this seems to me to be a most unfair argument, since a Universal could well be an INTELLIGIBLE particular, and so not merely a SENSIBLE particular distinguished by nothing except its longer duration. But we are concerned not with the validity of Aristotle's criticism but with its evidence for his conception of what he criticises. Did he then understand Plato's Idea of Man as nothing more than an eternal man? I can see only two alternatives, firstly, as Cherniss[1] believes, this analysis of the Idea into existential and essential moments is a mere dialectical trick in order to score a topical hit against the Platonists; secondly, Aristotle does in fact conceive the Idea in this way because HE COULD NOT CONCEIVE ANY OTHER POSSIBLE MODE OF EXISTENCE FOR THE IDEA that as an enduring sensible particular. I favour the latter because of what Aristotle says in the very passage cited by Cherniss.

1040b27-34:"But those who say the Forms exist, in one respect are right, in giving the Forms separate existence, if they are substances; but in another respect they are not right, because they say the One over Many is a Form. Their reason for doing this is that they cannot declare what are the substances of this sort, the imperishable substances which exist apart from the individual and sensible substances. They make them, then, the same in kind as the perishable things (for this kind of substance we know) - 'Man-himself' and 'Horse-itself', adding to the sensible things the word 'itself'". This is illuminating. Aristotle states 'they cannot declare what are the substances of this sort' - they are postulated but not explained; further, they make them the same in kind as perishable things by adding to the sensible things the word αὐτό. They cannot explain the nature of their Ideal Entities, but since they identify them merely by adding αὐτό, ITSELF, to the name of the sensible thing, Aristotle says that they make in fact the Ideas the same in kind as perishable things. And I am not sure that he is not right. It is very easy to talk about intelligible reality, but what does this really mean? It can be posited but it cannot be described, at least it can be described only in terms of sense experience if it is to be described at all, as witness the Greek anthropomorphic gods. Therefore, Aristotle says in effect that the Idealists give no explanation of the mode of existence of the Ideal entities which they postulate, and according to the way in which they

1. Aristotle's Criticism of Plato 3-4.

talk about them, he can only suppose that they are in fact distinguishable from sensible particulars only by their eternity.

The second type of criticism turns on their universality. Because his own conception of universality is to be the predicate common to a plurality of particulars, he regards it as a contradiction in terms to talk about a separate universal, since if separate the universal cannot be common to the particulars; if common to the particulars the universal cannot be separate. So in 1003a8-15 he argues that if universal, the Ideas cannot be substances; if not universal, they cannot be objects of knowledge. In fact, a majority of his criticisms rests on just this separation of the universal from its instances, for he does not himself separate. And this makes it clear that however absurd Aristotle thought or affected to think that such separation of the universal from its instances was, he understood Plato as so separating the Ideas.[1] We conclude, then, that Aristotle conceived the Idea as an object of knowledge, as the universal common to a plurality of instances, and also as separate from these instances as itself an individual particular. In a word, he conceived the Idea as a universal substance.

1078b13-32:/ We have already[2] quoted the introduction to this passage; it continues:"The supporters of the Ideal Theory were led to it because on the question about the truth of things they accepted the Heraclitean sayings which describe all sensible things as ever passing away, so that if knowledge or thought is to have an object, there must be some other and permanent entities apart from those which are sensible; for there could be no knowledge of things which were in a state of Flux. But....Socrates was occupying himself with the excellences of character, and in connection with them became the first to raise the problem of universal definition. ....But Socrates did not make the universals or the definitions exist apart; they, however, gave them separate existence, and this was the kind of thing they called Ideas."

Here we have four of the six points listed in A.vi. - i) Sensible things are ever passing away, as is asserted by the Heraclitean sayings; ii) Socrates raised the problem of universal definition, iii) which could not be in a state of Flux but must have separate existence, if it was to be an object of knowledge; iv) such kind of things the Idealists called Ideas. But naming and Participation lack. To these latter we must now turn.

1. So Mabbott, Classical Quarterly XX.72:"Aristotle means by separation a severence complete and absolute." Stewart, Plato's Doctrine of Ideas 3-4, thinks his harping on separation is erroneous because he misunderstood Plato's methodological side and was blind to his aesthetic side; and Ritter, The Essence of Plato's Philosophy 113, note 1, also considers Aristotle wrong; but, as Ross would say, Plato's Theory of Ideas 15, this is "a product of XIX century conceptualism far removed from the simple realism of Plato's thought." 2. See page 67 above.

What Aristotle Understood by Participation:-

We have seen above[1] that Aristotle alleges that Plato did not make it clear what he meant by Participation, but left it an open question, just as[2] apparently he did not explain what he meant by Ideas as separate universal substances, but Aristotle made his deductions from the actual procedure of the Platonists and thus came to the conclusion that the Idea of Man was simply an eternal man. We can, then, expect that here too, although Plato is said not to have made it clear what Participation was, Aristotle has made his own conclusions as to the nature of Participation, for how else could he criticise it? To criticise at all one must know what one is criticising, or at least have a conception of it. To ascertain this it will be convenient to start with the procedure of naming.

Homonyms and Synonyms. In his Categories 1a1-12 Aristotle defines naming as having two senses: "Things are said to be named 'equivocally', ὁμώνυμος, when, although they have a common name, the definition corresponding with the name differs for each. Thus, a real man and a figure in a picture can both lay claim to the name 'animal'.....but the definition corresponding with the name differs for each..... On the other hand, things are said to be named 'univocally', συνώνυμος, which have both the name and the definition answering to the name in common. A man and an ox are both 'animal' and these are univocally so named, inasmuch as not only the name but also the definition is the same in both cases....." This system of nomenclature Aristotle applies to Ideas and sensibles, and concludes that if things are 'synonyms' of Ideas, a third form will be common to both as their 'synonym', and so lead to a regress, but if things and Ideas are 'homonyms' there will be nothing common to them, and the Ideas will thus not be causes as they are supposed to be. As a result, he dismisses Plato's theory of things being named after Ideas as unintelligible. This of course rests on the assumption of Ideas as eternal particulars.

So 991a2-8:"And if the Ideas and the particulars that share in them have the same form, there will be something common to these; for why should 2 be one and the same in the perishable 2's or in those that are many but eternal (i.e. mathematical 2's), and not the same in the '2 itself' as in the particular 2's? But if they have not the same form, they must have only the name in common, and it is as if one were to call both Callias and a wooden image a 'man', without observing any community between them." The question, "Why should 2 be one and the same in the perishable 2's?" refers to Aristotle's argument that there is no ground for making a unique Idea of Two, in which the particulars share, since the same process

1. Page 70 sub. fin. 2. Page 73 above.

should yield a pseudo-Ideal Two in which the Idea of Two (the 2 Itself) and any particular 2 might share,[1] and this is his famous Third Man argument.[2] Aristotle, then, conceives the relation of naming here as the sharing of particulars in a common universal, and he argues that if this universal is itself a particular, albeit a universal particular, it should share along with sensible particulars in a third such universal, the pseudo-Idea. In this part of the argument, the Idea and the thing are named univocally or as 'synonyms'.[3] He then tries out the effect of conceiving the relation of naming equivocally, as 'homonyms', and concludes that, just as Callias and a statue have nothing in common except the designation 'man', so an Idea and a particular, if named equivocally, could have only their name in common, and so the Idea could contribute nothing to the existence of any particular.[4] Because Aristotle assumes that his disjunction of synonymity and homonymity is exhaustive, he concludes that things can be named after the Ideas neither synonymously nor homonymously, but he overlooks a third way of naming, that assumed by Plato himself.[5] Nevertheless, what matters for the purpose of our argument is that this criticism, whether right or wrong, shows that Aristotle did in fact know well enough that for Plato sensible particulars were named after the Ideas, although he argues that they could not have been, since named neither synonymously nor homonymously. Hence, it is obvious that Aristotle had no clear conception of the manner in which things were named after the Ideas, but only the fact that they were so named.

Participation Proper. In the passage 987a32-b14 quoted above[6] Aristotle, while stating that Plato says that things exist by Participation, adds that what this Participation of the Forms might be was left an open question. This means that Plato gave no precise account of the relationship. Just as in the question how things were named after the Ideas, which has been discussed just above, it appeared that, in default of any clear statement by Plato, Aristotle applied his own terminology to find an explanation for it, and having two

1. The alternative, 'or in those that are many but eternal', referring to mathematical 2's, makes no difference to the argument: it is all one whether the Ideal Two gives its name to particular 2's or to mathematical 2's.
2. For a discussion of the Third Man argument, see Cherniss, Aristotle's Criticism of Plato and the Academy 287ff. The same argument is found in Plato's Parmenides, which refutes the error of conceiving the Ideas as a thing, as Stewart says, Plato's Doctrine of Ideas 62. Robin, Platon 122, thinks this argument was borrowed by Plato from Polyxenus, but Ross, Plato's Theory of Ideas 87 with note 3, shows that the Third Man of Polyxenus was quite different since it involved no regress. Aristotle, I believe borrowed Plato's argument against himself without acknowledgement.
3. Compare 1059a11-14 for roughly the same argument.
4. In this I follow Cherniss, op. cit. 178-9, and Ross, Aristotle's Metaphysics I.162 and 191.
5. Cherniss, op. cit. 278-9, 296-9, and 311. 6. See page 70.

terms by which in his Categories he had described the process of naming, he tried out each in turn in order to discover what meaning Plato could have given to the process, so here also - such is my conclusion - in default of any clear statement by Plato as to what he meant when he spoke of things existing by Participation in the Ideas, he endeavoured to give his own interpretation of the statement. There is, however, a difference in this case. The naming of particulars was common to both Plato and himself ,, but there was no question of Participation in his own philosophy. Hence, he resorts to Plato's dialogues, as we shall see, and examines instances of the relationship between particulars and Ideas there, in order to form some conception of what Plato meant thereby. Hence, I maintain that while Plato left it an open question what Participation was, doubtless by not giving any clear explanation of the process, Aristotle nevertheless had his own interpretation of what Plato intended. And again we must draw attention to the purpose of the investigation of this part I: it is concerned not with what Plato really said or meant in the present question,-that indeed was left an open question - but only with what Aristotle, rightly or wrongly, understood him to have meant when he said, in this case, that things existed by Participation in the Ideas. Hence, we must examine passages elsewhere in the Metaphysics - since no further reference is made to the matter in A.vi - where Aristotle deals with this tenet in order to discover what meaning he gave it.

991a19-23: "But, further, all other things cannot come into existence from the Forms in any of the usual senses of 'from'. And to say that they are patterns and the other things share (μετέχειν) in them is to use empty words and poetical metaphors. For what is it that works, looking to the Ideas? (τὸ ἐργαζόμενον πρὸς τὰς ἰδέας ἀποβλέπον)" 991b4-6: "In the Phaedo the case is stated this way - that the Forms are causes both of Being and of Becoming; yet when the Forms exist, still the things that share in them (τὰ μετέχοντα) do not come into being, unless there is something to originate movement ..." The second passage implies Phaedo 100C-E as its source; both passages use the word most commonly applied by Plato to Participation, viz. μετέχειν, μίμεξις ; and the former passage uses terminology very close to that used by Plato in his 'demiurgic' passages, e.g. Cratylus 389B: πρὸς ἐκεῖνο τὸ εἶδος βλέπων, or better, Timaeus 28A: πρὸς τὸ κατὰ ταὐτὰ ἔχον βλέπων..... τὴν ἰδέαν ..... ἀπεργάζηται, and 28C-29A: πρὸς πότερον τῶν παραδειγμάτων ... ἀπηργάσετο. The closeness of the language suggests that Aristotle has referred to the dialogues for an explanation of Participation, and from an examination of these two passages one can fairly, I think, conclude that Aristotle believes, from the study of Plato's actual usage, that there is little difference between saying that the Forms are

patterns, and that other things share in them. But this does not mean that Aristotle necessarily interpreted Participation as things being modelled on Ideas, but his language, 'they are patterns AND, καὶ, the other things share in them', points that way. But he does not allow the conception of patterning to be legitimate, since, failing to find an ontological as distinct from a mythical basis for this - for the Demiurge he must take to be mythical in view of his question, 'What is it that works looking to the Ideas?' - he rejects such an explanation as mere empty words, poetical metaphors. So in the second passage quoted, he tacitly equates Participation with patterning when he refers to the lack of a source of movement, that is, an efficient cause of generation.

Other passages which refer to Participation add nothing to the above, but either state Aristotle's conviction that Participation is meaningless or look in vain for an efficient cause. Such are 992a28-29:"We say nothing about the cause of change, for 'sharing', as we said before, means nothing." 1045b8-10:."Some speak of 'participation', and raise the question, what is the cause of Participation and what is it to participate." 1075b16-20:"Further, why should there always be Becoming, and what is the cause of Becoming? - this no one tells us. And those who suppose two principles must suppose another, a superior principle, and so must those who believe in the Forms; for why did things come to participate, or why do they participate in the Forms?"

We conclude, then, that Aristotle found no clear explanation in Plato's works what Participation was, but, by examining certain passages in his dialogues which dealt with the mode of the existence of particulars, he found that Plato did not draw a very clear line between Participation - things sharing in Forms - and patterning - the Forms serving as patterns on which things were modelled. We cannot be sure that Aristotle considered that these two processes were synonymous, but he seems to have taken them to be so, and dismisses both as virtually meaningless - mere poetical metaphors. His chief ground for this was that he failed to find in Plato any sufficient cause whereby things shared in the Ideas or whereby they were made like Ideas.[1]

1. Ross, Plato's Theory of Ideas 154 note 2, has little on the subject except:"ὁμώνυμος...is Aristotle's usual way of expressing the relation of the particulars to the Ideas in Plato's system, 990b6, 991a6." The former reads:"For to each thing there answers an entity which has the same name, ὁμώνυμόν τι, and exists apart from the substances," which is concerned only with naming and not with the ontological ground of particulars; the latter reads:"But if they have not the same form, they must have only the name in common, ὁμώνυμα, and it is as if one were to call both Callias and a wooden image a 'man', without observing any community between them," which also is not conspicuously relevant.

1. The Separateness of Numbers. Numbers for Plato, says Aristotle, ad loc., exist apart from sensible things, while the Pythagoreans say that the things themselves are Numbers. This has already been explained above,[1] where it was shown that this means that Pythagorean Numbers were phenomenal, a number of units each of which was some sensible particular, whereas Plato's Numbers[2] were Ideal - that is, Threeness is an immaterial entity separate from things, by participating in which any group of three things is 3. As each Number was also an Idea, (at least, in Plato's Earlier Theory,[3] Ideal Numbers were Ideas of Number, as can be seen from Phaedo 101C[3]), it necessarily follows from his separation of Ideas that his Ideal Numbers were also separate from sensible things, so that this difference from Pythagoreanism is only a special case of his general stand on Separation.

2. The Objects of Mathematics. 987b14-18:"Further, besides sensible things and Forms he says there are the objects of mathematics, which occupy an intermediate position, differing from sensible things in being eternal and unchangeable, from Forms in that there are many alike, while the Form itself is in each case unique." This, as we have said,[4] elaborates Aristotle's statement that Plato differed from the Pythagoreans in not placing the objects of mathematics between Forms and sensible things. This means that, in the case of Numbers, Plato held Ideal Numbers as Ideas of Number separate from particular Numbers, as stated above in 1, and between these Forms and sensibles were a third class of entities identical with neither but between them - mathematical numbers. Similarly in the case of other branches of mathematics, there were objects of mathematics - lines, planes and solids - between the Ideas of these, the Ideal Magnitudes, and particular sensible magnitudes. These mathematical numbers, to take these as an example, differed from phenomenal numbers in being eternal like the Forms themselves - they are not three sensible objects which perish and change, but are simply three units; but they differ from Forms because these are unique - there is only one Threeness - whereas there are many 3's which are the objects of arithmetical operations. On the other hand, the Pythagoreans held only one type of number - phenomenal number - apparently identical with Plato's sensible numbers.. It is obvious, I think, that the difference is due to Plato's separation of Forms in general, of Forms of Numbers and Magnitudes in particular, or at any rate is connected with this

1. Pages 35-6. 2. Mathematical number will be mentioned below separately, and Plato's sensible numbers are not here referred to, since, in this respect, he would agree with the Pythagoreans.
3. This is without prejudice to the position in his later Doctrine of Idea-Numbers 4. Page 69 above.

separation, for, as the Pythagoreans did not maintain that there were any separate Ideal Numbers, not holding separate Ideas, they had no call to distinguish mathematical numbers as intermediate between Forms and things.

Therefore, we conclude that all three differences distinguishing Plato from the Pythagoreans turn on the source of his conception of Ideas as separate from sensible things, i.e. on hypostatised Ideas. His introduction of Ideas derived not from Pythagoreanism but from Cratylus and Socrates - the logical necessity of positing separate entities as objects of knowledge, and, we might add, as the basis of the existence of sensibles, if he was to accept on the one hand the Socratic Universals as objects of knowledge and on the other hand the Heraclitean conception of sensible things as in Flux, as always changing. As his Ideal Numbers were Ideas, the separation of Ideas entailed the separation of Ideal Numbers from sensible numbers, whereas the Pythagoreans held neither Ideas in general nor Ideas of Number in particular. And finally Plato differed in a third respect by placing the objects of mathematics between Forms, i.e. Ideas of Numbers and of Magnitudes, and sensibles as a third class of entity, whereas the Pythagoreans were confined even in their mathematical operations to the world of sense for the basic reason that, not having conceived a realm of hypostatised intelligible entities, they knew of only one world, that of the senses. We have shown[1] that Aristotle knew of two successive phases of Platonism, and a comparison of that part of A.vi here discussed with other passages dealt with on pages 71 sub fin. to 74, shows that what Aristotle describes and understands by the 'introduction of the Ideas' is in fact the Early Platonic Theory of Ideas as distinct from the Later Doctrine of Idea-Numbers, and thus it is in respect of the tenets of this Early Platonism as a whole, without prejudice to possible resemblances in isolated details, that Plato differs from the Pythagoreans. Whether Ideas of Numbers and mathematical objects, in which he further differed, were also part of this theory - for we have not seen any conspicuous Aristotelian references to them in dealing with this Early Platonism - cannot be decided from Aristotle's evidence alone, and, as will be seen, can hardly be discovered with certainty even from Plato's dialogues. But whether they belong to that Theory of Ideas or not, it is clear that, as differences from Pythagoreanism, they derive from Plato's general position, that he separated Ideas from sensible things, which, in a word, was his Early Theory of Ideas.

1. Page 67 above.

Section ii. Τὰ μὲν πολλὰ τούτοις ἀκολουθοῦντα.

List of Resemblances: The resemblances between Platonism and Pythagoreanism, as listed in Metaphysics Λ.vi, are four in number. 1."The Pythagoreans say that things exist by 'Imitation' of Numbers, and Plato says that they exist by 'Participation'", 987b11-12. 2. "But he agreed with the Pythagoreans in saying that the One is a Substance and not a predicate of something else," 987b22-24. This is apparently referred to in three other passages: 996a6-8:"Unity and Being, as the Pythagoreans and Plato said, are not attributes of something else, but the substance of existing things." 1001a10-12:"Plato and the Pythagoreans thought Being and Unity were nothing else, but this was their very nature, their Essence being just unity and being." 1053b10-13:"This is the very question that we reviewed in our discussion of problems (in which appears the previous quote), viz. what the One is, and how we must conceive of it, whether we must take the One itself as being a Substance, as both the Pythagoreans say in earlier and Plato in later times,..." 3. "And in saying that the Numbers are the causes of the reality of other things, he agreed with them," 987b24-25. 4. It is implicit in 987b25-26 and 33/,[1] that he agreed with them in making another element than the One, corresponding to the Pythagorean Infinite or Unlimited. So also in 988a26-27:"Plato spoke of the Great and the Small, the Italians of the Infinite," and Physics 203a4-16[1]:"Some, as the Pythagoreans and Plato, make the Infinite a principle in the sense of a self-subsisting Substance, and not as a mere attribute of some other thing. .....Further, the Pythagoreans identify the Infinite with the Even.....but Plato has two Infinites, the Great and the Small." We are not here concerned with the secondary difference in their respective conceptions of the Infinite, but only with this point of resemblance between the two philosophies, that the other element than the One was the Infinite or some analogy to this.

The agreement between Aristotle's description of the One and the last of the references to the Infinite is so close that it will be convenient to deal with points 2 and 4 together.

2 and 4. The One and the analogue of the Infinite as Substance: The Meaning of Substance, οὐσία : Cherniss[2] is probably correct in saying that there is no evidence that the Pythagoreans stated that the One is a Substance or even thought about the matter, that[3] indeed this allegation was Aristotle's own deduction. But our aim is not to assess the validity of Aristotle's testimony, but to reach a conception of his meaning, of how he understood the tenets to which he bears witness. The important thing, then, is to explain why he calls both the One and the analogue of the Infinite

1. See section iii below. 2. Aristotle's Criticism of Pre-Socratic Philosophy 37. 3. Op. cit. 44.

Substances, and what he means by this word. And the explanation, as usual, can be found in the commentary of Sir David Ross. "οὐσία, he says,[1] is a non-committal word meaning the true reality of things whatever that may be, whether Matter, Form or Compound; and since Plato thought reality lay in the Form, the word here means 'form' in opposition to matter" - referring to the One. He refers us to 1028b33-9a4, and this reads:"The word 'substance' is applied, if not in more senses, still at least to four main objects; for both the Essence and the Universal andthe Genus are thought to be the Substance of each thing, and fourthly the Substratum. Now the Substratum is that of which everything else is predicated, while it is itself not predicated of anything else. And so we must first determine the nature of this; for that which underlies a thing primarily is thought to be in the truest sense its Substance. Amd in one sense Matter is said to be of the nature of the Substratum, in another, shape, and in a third, the compound of these." That is, Substance means variously, Essence

Universal

Genus

Substratum i) Matter,

ii) Shape,

iii) Compound of these.

Now the words 'that of which everything else is predicated, while it is itself not predicated of anything else' reminds us of the description of the One on the previous page, 'The One is a Substance and not a predicate of something else,' 'Unity....is not an attribute of something else, but the Substance of existing things,' and of the description of the Infinite as 'a principle in the sense of a self-subsistent Substance, and not as a mere attribute of some other thing'. Thus, in both cases, Aristotle means by 'Substance' the Substratum of things. Let us examine, then, to which of the three meanings of Substratum he refers.

The key lies in the two passages which elaborate these two resemblances to Pythagoreanism, thus:"Since the Forms were the causes of all other things, he thought that their elements were the elements of all things. As matter, the Great and Small were principles; as essential reality, the One; for from the Great and the Small, by participation in the One, come the Numbers,[2]" 987b18-22; "For the Forms are the causes of the essence of all other things, and the One is the cause of the essence of the Forms; and it is evident what the underlying matter is, of which the Forms are predicated in the case of sensible things, and the One in the case of the Forms, viz. that this is a dyad, the Great and the Small," 988a10-14. The more precise determination of the meaning of this

1. Aristotle's Metaphysics I.171 ad 987b21.
2. The variant readings will be discussed below.

will be left over for discussion in section iii, when the nature of the Great and Small is dealt with; here we notice only that these two passages bear evidence, when taken together, that the Forms were the causes of the Essence of sensible things and the Great and Small, the analogue of the Infinite referred to above, is the underlying matter.[1] As Aristotle interprets the Forms and the analogue of the Infinite as the elements of all things, the cause of the Essence here refers to what is generally known as the formal cause or Shape, as he terms it in 1028b33-9a4, as is evident from the example there given - not quoted above. As, for the Pythagoreans, the One and the Infinite also were the elements especially of Numbers, as has been explained on page 47 above,[2] the conclusion is that he calls the One a Substance in the sense of the Substratum as the Shape or formal cause, and the Infinite is a Substance in the sense of the Substratum as Matter.

The Reading of 987b21-22: The quotations of 987b18-22 and 988a10-14 above agree, with one exception, that the elements of the Forms were the elements of all other things; these elements were, in the case of Forms, the One and the Great and Small, in the case of other things, the Forms and the Great and Small. Just how this Great and Small is to be understood, whether different for Forms and for things, or whether taken twice over, will be discussed in section iii, as stated above. What concerns us here is why Aristotle says that 'from the Great and the Small, by participation in the One, come the NUMBERS' in 987b18-22, when in 988a10-14 it is FORMS that are composed of the One and the Great and the Small. This requires an examination of the manuscript reading and of proposed variants to the text.

987b21-22: ἐξ ἐκείνων γὰρ κατὰ μέθεξιν τοῦ ἑνὸς τὰ εἴδη εἶναι τοὺς ἀριθμούς . Zeller accepted this manuscript reading, and translated "Forms become Numbers." This both van der Wielen[3] and Ross[4] reject: τοὺς ἀριθμούς, having the article, cannot be used predicatively. On the other hand, the reading is kept by Cherniss[5]

1. van der Wielen, Die Ideegetallen van Plato 98-99, explains that by form and matter Aristotle means that by working on the Great and Small that is potentially any Idea, the One produces the actual Ideas, and hence by working on the Great and Small which is also potentially any sensible thing, the Ideas produce the actual world of sense.
2. It is noteworthy that 987a17-19, quoted on page 46 and referring to the Pythagorean One and Infinite, apparently contradicts the definition of Substratum in 1028b33-9a4. The former calls these principles the Substance of the things "of which they are predicated", the latter is that "of which everything else is predicated while it is itself not predicated of anything else". To be quite consistent Aristotle should have said of the former that they are the Substances of the things "which are predicated of them". I can only suppose that Aristotle here batted an eye, but his meaning is clear enough: ontologically things as units are named after the One, while logically the One is predicated of them: each of these units is one.
3. Op. cit. 53-54. 4. Aristotle's Metaphysics I.172.
5. Aristotle's Criticism of Plato 180 note 104.

on the authority of Robin, but he interprets τοὺς ἀριθμοὺς not as predicative, but as in apposition. His authority for this is that of Alexander, who thought the apposition possible, and Mataphysics 1081a5-7, which uses just such an apposition, "And the Ideas cannot be the Numbers" -καὶ τὰς ἰδέας οὐκ ἐνδέχεται εἶναι τοὺς ἀριθμούς. The manuscript reading, then, of 987b21-22, he translates,[1] "The Ideas are the Numbers so produced." Personally I consider Cherniss is correct, and prefer Alexander and Aristotle - 1081a5-7 above/- to the authority of Gillespie[2] that such an apposition is not Greek, even though he is followed by Ross[3] and van der Wielen.[4] It is, however, a strong argument against the manuscript reading that Zeller later gave up his interpretation thereof.[5] Nevertheless, no suggested emendation is entirely satisfactory.

The emendations are four in number: 1. To avoid the apposition referred to above, Schwegler deletes the τοὺς ,[6] and so reads τὰ εἴδη εἶναι ἀριθμούς which I suppose was meant to support Zeller's "The Ideas become Numbers". But Gillespie[2] criticises this in that ἐξ ἐκείνων εἶναι means that the Forms are derived from the dyad as their ὕλη , and so a predicative ἀριθμοὺς is impossible. This seems to me a fair enough objection.

2. Jackson[7] proposed expunging τοὺς ἀριθμοὺς and inserting these words elsewhere, where they would serve to bolster up his theory that the One was the formal element of Numbers, not of Ideas, and Numbers, not the One, were the formal element of Ideas. This gives the reading.....τὰ εἴδη εἶναι , that is, "From the dyad ~~xxxx~~ come the Ideas". This gives excellent sense, but Jackson later[8] repented of the transposition, and it is not admissible to omit τοὺς ἀριθμοὺς altogether, since in line 24 the words are obviously not used for the first time.[9]

3. Jackson's later reading[10] is τὰ εἴδη εἶναι τὰ ὡς ἀριθμούς. I have not come across any criticism of this, but it seems unlikely both because it is a ἅπαξ λεγόμενον for a description of Idea-Numbers, and because it does not avoid the awkward apposition objected to by those commentators who call for an emendation of the text.

4. Finally, Gillespie[2] has shown that τὰ εἴδη might as well be a copyist's insertion, especially since the offending words occur earlier, in an oblique case, in a similarly disputed reading, and he reads, ἐξ ἐκείνων εἶναι τοὺς ἀριθμούς, "From the dyad came the Numbers." He was anticipated in this by Zeller, who had given up

1. The Riddle of the Early Academy 8.
2. Journal of Philology XXXIV.153. 3. Aristotle's Metaphysics I.171
4. Die Ideegetallen van Plato 53. 5. van der Wielen, op. cit.6.
6. Journal of Philology XXXIV.152-3.
7. Journal of Philology X.287-8. 8. Journal of Philology XXXIV.154
9. Stenzel, Zahl und Gestalt 6 note 2.
10. Texts to Illustrate a Course of Elementary Lectures on the History of Greek Philosophy, Macmillan and Co., London, 1914, p. 69, section 102 ad loc.

his earlier acceptance of the text, as referred to above, and he was followed by Ross[1] and van der Wielen[2]. Against this, however, must be Cherniss'[3] or rather Robin's objection that this deletion breaks the train of thought started in 987b18-22.

Now, as stated above, I am of the opinion that the authority of Alexander and 1081a5-7 is sufficient to accept the manuscript reading, and Ross[4] goes so far as to allow the possibility : "If the manuscripts are right, Forms and Numbers are expressly identified". Further, the manuscript reading is clearly behind the translations offered by the following. Milhaud[5]: "It is by the Great and Small that the Ideas, which participate in Unity, are also Numbers". Stenzel[6]: "From them (the dyad, Great and Small) the Ideas are the Numbers". And Cherniss' translation has been given above:[7] "The Ideas are the Numbers so produced." Nevertheless, it would be rash to use this reading to establish that Forms are Numbers, indeed are Numbers in virtue of their derivation from the Great and Small, since Gillespie makes out a case against this use of the verb 'to be'. Hence, these two assertions must be proved by other evidence.

The Identity of Forms and Numbers. That Aristotle regarded their identity as common knowledge is indicated in A.vi by a substitution of 'Numbers' for 'Forms' in two separate places, not to mention the passage quoted on page 82 above, where the translation follows the best emendation, Gillespie's. For here Aristotle names the Forms as the causes of things since their elements were those of all things, and in naming these elements concludes that from them came the Numbers. Besides this passage, we say, there are 987b27 and 987b30, where NUMBERS are said to have been separated by Plato, whereas it is well known that he separated IDEAS. Further, in 987b24-25 NUMBERS are said to be the causes of the reality of other things, whereas in 987b18-19 it was FORMS that played this rôle. By themselves, perhaps, these references do not carry much weight, but they show that the same identity which can be demonstrated by an imposing array of passages elsewhere refers in A.vi also. This imposing array is listed by Ross,[8] and from his list the following examples have been selected.

De Anima 404b24-25: After naming Plato, the passage continues: "The Numbers are by him expressly identified with the Forms themselves or principles, and are formed out of the elements."

1. Aristotle's Metaphysics I.162. Cp. Plato's Theory of Ideas 176 note 2: "τοὺς ἀριθμοὺς can hardly be either the predicate or in apposition to τὰ εἴδη. It is extremely not certain which of the two phrases should be omitted." 2. Die Ideegetallen van Plato 54. 3. Aristotle's Criticism of Plato 180 note 104.
4. Aristotle's Metaphysics I.164.
5. Les Philosophes Géomètres de la Grèce 197.
6. Zahl und Gestalt 6. 7. Riddle of the Early Academy 8.
8. Plato's Theory of Ideas 216 note 1.

Metaphysics 1080b11-14 : In a statement closely resembling in its tenets 987b14-18, we read: "Some say both kinds of Number exist, that which has a Before and After being identical with the Ideas, and mathematical number being different from the Ideas and from sensible things, and both being separable from sensible things." The passage continues by contrasting the views that mathematical number alone exists, generally ascribed to Speusippus, that of the Pythagoreans, that of some unknown Platonist, and that which identified mathematical number with the 'Number of the Forms', generally ascribed to Xenocrates.

1086a11-13: "And he who first supposed that the Forms exist and that the Forms are Numbers and that the objects of mathematics exist naturally separated the two." This not only agrees in its tenets with the above, but also obviously refers to Plato in referring to 'he who first supposed the Forms to exist.'

Whatever may be thought about Plato's identification of Forms with Numbers, this much is clear, indeed is an inescapable conclusion, that Aristotle believed that Plato identified Forms with Numbers. It might, however, be objected that all the above passages, which have been selected on account of their obvious reference to Plato - first by name, the second by its agreement in doctrine with A.vi where Plato is named and by its contrasting the view expressed with all other schools of that time known to us except that of Eudoxus, and the third because of the periphrasis which can only mean Plato - all these passages, while ascribing the identity of Forms and Numbers to Plato, may perhaps be interpreted as showing no more than that for Plato Ideal Numbers were Forms, i.e. Ideas of Number, and not the converse. To show that not only were Numbers identified with Forms, but that Forms were identified with Numbers, I cite 3 other passages, where the identification of Forms and Numbers is connected not with arithmetic but with Man and Animal - and these passages are also from Ross' list.

991b9-12: "Again, if the Forms are Numbers, how can they be causes? Is it because existing things are other Numbers, e.g. one number is man, another is Socrates, another Callias? Why then are the one set of numbers causes of the other set?...."

1081a5-13: "Now if all the units are associable and without difference, we get mathematical number - only one kind of number, and the Ideas cannot be the Numbers. For what sort of number will Man-himself be or Animal-itself or any other Form? There is one Idea of each thing, e.g. one of Man-himself and another one of Animal-itself; but the similar and undifferentiated numbers are infinitely many, so that any particular 3 is no more Man-himself than any other 3. But if the Ideas are not Numbers, neither can they exist at all. For from what principles will the Ideas come?"

1091b26-30: "Again, if the Forms are Numbers, all the Forms are identical with species of good. But let a man assume Ideas of anything he pleases. If these are Ideas only of goods, the Ideas will not be Substances; but if the Ideas are also Ideas of substances, all animals and plants end all individuals that share in Ideas will be good."

These three passages show that the identity of Ideas and Numbers does not mean no more than that the Number Three is an Idea, but that the Idea of Man, of Animal, were in some sense thought to be Numbers, and if these Ideas were not Numbers Aristotle denies that they could exist at all. It is implicit in 'let a man assume Ideas of anything he pleases' that ALL Ideas were identified, at least in Aristotle's mind, with Numbers, but in what sense he thought that Ideas were Numbers is not yet clear. This is the next question to discuss.

What Aristotle Understood by the Identification of Ideas with Numbers. We must again remind the reader that it is not the purpose of this chapter to discover what Plato thought about Ideas and Numbers, but only to ascertain what Aristotle understood him to have meant. Hence, when in the Introduction[1] we said that some critics interpret Numbers as a class of entities different from and higher than the Ideas on the evidence of Theophrastus, we were not discussing Aristotle's conception of Platonism. The above references have made it clear that for Aristotle Ideas and Numbers were identified. Further, since Aristotle specifies among the Ideas identified with Numbers Man and Animal, it is clear that those critics who limit the identification to Ideas of Number[2] - to Twoness and Threeness - are either incorrect or are referring to what they believed Plato maintained, not to what Aristotle understood about the matter. Hence, the only interpretations of the identity of Ideas and Numbers that are relevant to our purpose are those which conceived this as either a one-one identification - that Man, for example, is 2 or 3 and Animal 4[3] - or that this was meant metaphorically.[4] Whether this identification was historically correct or not,[5] is, so far as concerns our purpose, entirely beside the point. We are concerned only with Aristotle's interpretation, irrespective of whether it was correct or not. And as it has been shown that he believed that Ideas were identified with Numbers in some sense, and by implication that all Ideas were identified with Numbers - for he goes so far as to mention Ideas of Man and of Animal in this connection - it remains to determine in what sense this identification was made.

1. e.g. Brommer, Stenzel, and Robin, on pages 15-17 above.
2. e.g. Ritchie and van der Wielen on pages 17-18 above.
3. e.g Ross in Aristotle's Metaphysics on pages 18-19 above. Cp. Cherniss, Riddle of the Early Academy 37, and apparently Wilpert, Classical Review LXV.29.
4. See page 19 above.
5. Cp. Cherniss' theory, Riddle of the Early Academy 29 et al. This question is dealt with on the Appendix below.

As Aristotle's concern with the arithmetical side of Idea-Numbers and his apparent one-one identification of Man with some number in 991b9-12, of Man with 3 and Animal with some other Number in 1081a5-13, quoted above, gives a prima facie case in favour of this interpretation, it will be as well to begin by rejecting this interpretation, following along the lines which seem to have led Ross[1] to alter his opinion. The first locus classicus is 1081a5-13, referred to above. But Ross points out that the words, a little lower down than the quotation above, 'and the Ideas cannot be ranked as either prior or posterior to the Numbers', suggest that his statement that Plato identified Ideas with Numbers was based on his inference rather than on a plain statement by Plato. I would go further than that. If we turn for a moment to the second locus classicus, 1084a12-25, we find, it is true, 'e.g. if 3 is Man-himself, what Number will be the Horse-itself?'[2] where the Number of Man agrees with that given in 1081a5-13. But note that Aristotle says 'E.G. IF 3 is Man' - it is a supposition only, and that it is a supposition for the sake of argument and not a supposition based on his belief that Man was 3 in Plato's Theory, is shown by his inability to assign to Horse its proper number. Surely if he knew or believed that Man was 3 he could have said what Number he believed Horse was! But read on further:[3] "If the 4-itself is an Idea of something, E.G. OF HORSE OR OF WHITE, Man will be part of Horse, IF MAN IS 2." Here Horse is supposed to be 4, whereas previously Aristotle was unaware of the Number of Horse. In fact, that he is making random suppositions, wild guesses in fact, is shown by his alternative -'or White' - and the fact that lower down Man is no longer 3 but 2. In a word, Aristotle does not believe that Plato identified Man with 3, but supposes for the sake of argument that Man is some Number - any Number, it does not matter which - 2 or 3. This is no conception of a one-one identification of Ideas with Numbers, but the supposition that if Man is a Number in some sense it is also a Number in a particular sense, that of a one-one identification with some Number. He supposes that, if Man is a Number, it can be identified with some particular Number, and then points out certain absurdities that follow. E.g. if it is 2 and Horse is 4, Man is ½ a Horse. If Man is 3 or any Number at all, and other species of Animal are other Numbers, since there are only 10 Numbers according to Plato - if he is referring to Plato - the Numbers will run short since there are more than 10 species of Animal. This does not mean that Aristotle thought Man was 2 or 3, only that he thought the Idea of Man was a Number in some sense, and he is demonstrating that it cannot be in this particular sense. The sense in which he really conceived Forms to be Numbers is in fact indicated lower down in this same passage, 1081a12-17.

1. Plato's Theory of Ideas 217-8 with 218 note 1.
2. 1084a14. 3. 1084a23-25.

1081a12-17: "If the Ideas are not Numbers, neither can they exist at all. For from what principles will the Ideas come? It is Number that comes from the One and the Indefinite Dyad, and the principles and elements are said to be principles and elements of Number, and the Ideas cannot be ranked as either prior for posterior to the Numbers." Note the 'are said'. Because the Platonists said so, Aristotle believes that the principles and elements of Ideas are the principles and elements of Number, namely, the One and the Indefinite Dyad. This is the reason why Ideas are Numbers - because their elements are the elements of Numbers. If, for the sake of argument, the Ideas are not Numbers, Aristotle cannot see how they could exist at all, since there are no other elements from which the Ideas could be constituted.

That this is the correct interpretation of the identity of Ideas and Numbers, in Aristotle's opinion, appears very clearly from a comparison of 1091b19-27 with 1091a5-6. 1091b19-27: "To say that this first principle is good is probably correct; but that this principle should be the One, or, if not that, at least an element, and an element of Numbers, is impossible....For on this view, all the units become identical with species of good...Again, if the Forms are Numbers, all the Forms are identical with species of good." That is, all the Forms will be identical with species of good because the One, which is an element of Forms, has been identified with the Good.[1] Now this One is here said to be an element of Numbers, and it is assumed that the Forms are Numbers. The whole argument hinges on the assumption that Forms are Numbers, since otherwise they would not be open to the objection that they become species of good. And what characterises these Forms as Numbers is not any one-one identification of Forms with Numbers, but the fact that their element is the One - this makes them Numbers. So 1091a5-6: "Number according to him (Plato) cannot be generated except from the One and an indefinite dyad." So when Xenocrates perhaps, or it may be Plato, it makes no difference, generates Magnitudes from a Number and a Matter, not from One and a Matter, Aristotle doubts whether these will be Ideas - 1090b20-25: "As for the believers in Ideas, this difficulty misses them; for they construct spatial magnitudes out of Matter and Number,... But will these Magnitudes be Ideas..." So 992b13-18: "Nor can it be explained...how the lines and planes and solids....exist or can exist....; for these can neither be Forms - for they are not Numbers....."

Aristotle believes that Forms are Numbers because constituted from the elements of Number, the One and an indefinite dyad,. If the Forms are not Numbers, they cannot exist since there are no

1. Cp. 988a14-15: "Further, he has assigned the cause of good and that of evil to the elements, one to each of the two."

other elements from which they could be composed except those of Numbers. If they were generated from any other elements, e.g. from Numbers and a Matter, they would no longer be Forms at all, but a fourth class. This incidentally seems to me to refute Ross' conception of Ideas as constituted from Numbers and a Matter - at least it shows that Aristotle did not understand Plato's Idea-Numbers in this way - such composites would be neither Ideas nor Numbers.

Lest it be thought that we are clutching at straws, examine the continuation of the second last passage quoted. 1090b32-1a6: "And those, who first posit two kinds of Number, that of the Forms and that which is mathematical (Plato), neither have said nor can say how mathematical number is to exist or of what it is to consist.... If it consists of the Great and Small, it will be the same as the other - Ideal Number.....Number, ACCORDING TO HIM, cannot be generated except from the One and an indefinite dyad." Since the Ideas, as we have seen, have as elements the One and the Great and Small - an indefinite dyad - they are by virtue of this derivation, and by this alone, Numbers.

But the most definite statement that these elements, the One and the Great and Small, is what makes Ideas Numbers, is 1089a35-b2: "Surely the Indefinite Dyad or the Great and Small is not a reason why there should be two kinds of white or many colours or flavours or shapes; FOR THEN THESE ALSO WOULD BE NUMBERS."

We have, then, reached this conclusion, that Aristotle sees two points of resemblance between Platonism and Pythagoreanism, firstly, that they agreed in making the One a substance as formal cause, and secondly that they agreed in making some analogue of the Infinite a substance as underlying matter. In other words, Plato agreed with them in compounding his first entities out of the two elements, the One and an Infinite. As Plato, according to 1090b32-1a6, believed the One and the Infinite were the only elements from which Number could be generated, Aristotle understands Platonism to imply that whatever was generated from these two elements must be Numbers - so 1089a35-b2. Hence, as Ideas were derived from these elements, they were Numbers.

It cannot be objected that this identification of Ideas and Numbers in respect of their origin was Aristotle's deduction from his conception of Number - for his conception of Number was quite different. In 1088b14ff Aristotle denies that eternal things (and so Numbers) can consist of elements, and that the argument is based on his own doctrine of Actuality and Potentiality shows that this is no topical hit, but his conviction. But, it might be objected, he did not regard Numbers as eternal entities. At any rate, for Aristotle, the essential characteristic of Numbers was that they consisted of units. So in M.1 vi., when he undertakes to show that Numbers cannot exist as separable substances, he bases a long and

involved argument on the assumption that there are three kinds of Numbers, and all these kinds he distinguishes by their units, and adds:"These are of necessity THE ONLY WAYS in which the Numbers can exist," 1080b5-6.

Owing to this method of argument, it sometimes seems that Plato's Ideal Numbers also consisted of units.[1] However 1002b12-27 is evidence that his Numbers were not unitary, for there, speaking as an Academician ('Forms which WE posit'), Aristotle argues that Ideal Numbers was postulated because each mathematical number is infinite (many 2's), so that there could be no corresponding unity whence they could derive their existence unless there were Ideas of Number - an argument essentially the same as Phaedo 101C, where there can be no 2's except by sharing in the Two. With this take 1080a30-35:"And so, while mathematical number is counted thus -after 1, 2 (which consists of another 1 besides the former 1) and 3 (which consists of another 1 besides these 2) and the other numbers similarly; but Ideal Number is counted thus - after 1, a distinct 2 which does not include the first 1, and a 3 which does not include the 2, and the rest of the number series similarly." This implies that, for Plato, the Ideal Numbers have no units, but are distinguished by their serial order,[2] whereas for Aristotle numbers were nothing more than aggregates of units.

Therefore, returning to A.vi, Aristotle uses Forms and Numbers indiscriminately because there the Forms are in fact Numbers - what are usually called Idea-Numbers - and by Forms being Numbers he means that they are so only in respect of their derivation, namely, from the same elements as Numbers, the One and the Great and Small. Hence, we may say that just as the Pythagoreans made the One and the Infinite the elements, as Aristotle expresses it, of Numbers and of things, so Plato made the One and an analogue of the Infinite - the Great and Small - the elements of the Ideas and of things, and as these were also the elements of Numbers, the Ideas were Numbers in respect of their origin. So Ideas were derived from the One as formal element, from the Great and Small as material element, while sensible things had as their corresponding elements the Ideas and the Great and Small. What relation the Great and Small in Ideas had to the Great and Small in sensibles will be discussed in section iii below.

1. Compare van der Wielen, Die Ideegetallen van Plato 61:"M.vi-ix is unreliable because it is influenced by his own conception of number." Also op. cit. 88-89:"Aristotle...passes judgement over Plato's theory and sees how far it agrees with the truth, and the truth is his own theory. If Plato's Number was not as Aristotle conceives Number, it cannot be Number.....He argues: Idea-Number is number; number is a number of units, .·. Idea-Numbers are numbers of units." Cp. Classical Quarterly Review XVII. 250:"Aristotle misses the point. He assumes numbers consist of units and gives this as if a statement of Plato's." Cp. Classical Quarterly XVII.113-4:" Aristotle has defects as a witness, e.g. in mathematical theory."
2. Cp. 1082b25-38 and Nicomachean Ethics 1096a17-19.

3. Numbers as the Causes of the Reality of Other Things.

We have shown[1] that, for Aristotle, the Forms were Numbers, so that when he states as the third resemblance between Plato and the Pythagoreans that both made Numbers the causes of the reality of other things, the prima facie meaning is that just as the Pythagoreans made Numbers the cause of the reality of other things so Plato made Idea-Numbers (for that is the usual term for Ideas identified with Numbers) the ultimate cause of phenomena. Thus, when he says that "And in saying that the Numbers are the causes of the reality of other things, he agreed with them," 987b24-5, we interpret this in the light of 987b18-9 :"Since the Forms were the causes of all other things, he thought their elements were the elements of all things," and 988a10-14:"For the Forms are the causes of the essence of all other things, and the One is the cause of the essence of the Forms.. ,." In these two passages it is clear that Aristotle understands the Forms to be the cause of sensible things because they were the causes of their essence, that is, they were what Aristotle terms the formal cause, and that this was connected with the construction of Forms and things from the same ultimate elements, the One and the Great and Small. Then just as in resemblances 2 and 4 Aristotle sees a resemblance between the two philosophies in the construction of eternal entities, Pythagorean Numbers and Platonic Idea-Numbers, from the elements, the One and an analogue of the Infinite, so here he sees a resemblance in the construction of phenomenal entities, namely, in their having eternal entities as their formal causes - in the case of Pythagoreanism, Numbers are the Essence of things in accordance with their method of definition, in the case of Platonism Idea-Numbers are their formal causes.

But it is quite possible that by Numbers Aristotle here means something more specific than Idea-Numbers, i.e. Numbers pure and simple. In this case a more fruitful reference would be 1090a4-6 : "For him who posits Ideas, Numbers supply the cause of things, if each Number is an Idea, for the Idea is the cause of Being for other things in some way or other." That is, Plato's causes are Ideas, but his Numbers are Ideas - Ideas of Number - and qua Ideas they too are causes. We have just seen the sense in which the Forms were causes: they were the causes of the Essence, and the Pythagoreans likewise, according to Aristotle's interpretation,[2] made Numbers the Essences of things by reason of their method of definition and so for them too Numbers, as Essences, were the cause of the reality of other things.

Hence, overlooking the essential difference in the natures of Plato's Ideal Numbers and Pythagorean phenomenal numbers, he sees a resemblance between the two inasmuch as both were the causes of the essence of other things, which is simply a special case of the more general tenet, that prime entities were the formal causes of

1. Page 85 above. 2. Pages 40-42 above.

all things.

1. Imitation-Participation.

Reading of 987b7-14: 987b7 οὕτως μὲν οὖν τὰ τοιαῦτα τῶν
8 ὄντων ἰδέας προσηγόρευσε, τὰ δ'αἰσθητὰ παρὰ ταῦτα καὶ
9 κατὰ ταῦτα λέγεσθαι πάντα· κατὰ μέθεξιν γὰρ εἶναι τὰ
10 πολλὰ τῶν συνωνύμων τοῖς εἴδεσιν. τὴν δὲ μέθεξιν τοὔνομα
11 μόνον μετέβαλεν· οἱ μὲν γὰρ Πυθαγόρειοι μιμήσεις τὰ ὄντα
12 φασὶν εἶναι τῶν ἀριθμῶν, Πλάτων δὲ μεθέξεις, τοὔνομα μετα-
13 βαλών. τὴν μέντοι γε μέθεξιν ἢ τὴν μίμησιν ἥτις ἂν εἴη
14 τῶν εἰδῶν ἀφεῖσαν ἐν κοινῷ ζητεῖν.

The first sentence, lines 7-10, offers several difficulties, which depend in the first place on the meaning of παρὰ ταῦτα. Gillespie[1] takes the sentence to mean that Plato called his intelligible entities Ideas, and made sensibles exist apart from them, but named after them, since they existed by Participation in the Ideas. This requires construing τῶν συνωνύμων as a genitive after μέθεξιν, the phrase then being an explanation of κατὰ ταῦτα λέγεσθαι, but since things must participate in Ideas, τοῖς εἴδεσιν must be ejected, because otherwise things will be said to participate in the things which have the same name as the Ideas, and so in sensibles! Then things derive their NAMES from the Ideas because they derive their BEING from the Ideas. But Ross[2] points out that παρὰ ταῦτα cannot mean "apart from the Ideas" as this requires the supplying of the word εἶναι, which could not have fallen out of the text, and therefore λέγεσθαι must be taken with παρὰ ταῦτα as well as with κατὰ ταῦτα, and the translation, then, is, "And he said that sensibles were called after these and were called what they were called by virtue of their relation to these." But he agrees that τοῖς εἴδεσιν must be excluded. As far as the meaning of παρὰ ταῦτα goes, Ross seems to be unassailable, and can be corroborated by Cherniss,[3] who says that λέγεσθαι goes with both phrases: things are called after Ideas and in accordance with them, and by van der Wielen,[4] who translates the phrases, "He said things get their names from the Ideas in virtue of their relation to these." But Ross later changed his opinion as to the reading of line 10,[5] keeping τοῖς εἴδεσιν and replacing τῶν συνωνύμων by ὁμώνυμα. This changes his earlier translation, "For the Many existed by participation in the Ideas that have the same name as they" to "For it was in virtue of Participation that the Many have the same name as the Forms." In other words, Ross' interpretation removes from lines 7-10 all

1. Journal of Philology XXXIV.151. 2. Aristotle's Metaphysics I.161 ad 987b8. 3. Aristotle's Criticism of Plato 178 note 101. 4. Die Ideegetallen van Plato 4.
5. Plato's Theory of Ideas 154 with note 2. See page 70 n.1 above.

mention of things EXISTING by participation in the Ideas. Indeed, I think Ross has gone too far. On the one hand, his reason for making this emendation overlooks an important possibility, and on the other, the sense of the passage requires an earlier mention of the mode of existence of things than line 12. We accepted Ross' reading on page 70 above, because the mode of existence of things which his reading excises nevertheless came in at the said line 12, but a more detailed examination of the passage is now required.

The reason Ross gives[1] for changing the text is that τὰ πολλὰ was meant to signify "the Many" and not "the majority", and, while τῶν συνωνύμων could be construed with the latter meaning, it makes nonsense with the former; hence he replaces the latter words by the predicative neuter plural δμώνυμα. But surely τῶν συνωνύμων could be construed with μέθεξιν, as Gillespie[2] has pointed out? Certainly the same word is followed by a genitive in lines 21-22 lower down. Nor am I persuaded that a copyist, seeing before him the phrase τὰ πολλὰ, would fail to realise it means "the Many" and would interpret it "the majority". Hence, I prefer his earlier interpretation. This better follows the reasoning behind the passage. Plato calls his intelligible entities Ideas, and asserts that sensible things are called after them (παρὰ ταῦτα) in virtue of their relation to the Ideas (κατὰ ταῦτα). Now it is, in my opinion, weak to follow the later Ross and interpret this relation as Participation, BY WHICH THE MANY HAVE THE SAME NAME AS THE FORMS, without further explanation, since this is as much as to say that things are named after Forms because they are named after the Forms. The plain sense of the passage leads us to expect the argument that things are named after Forms because of the Participation BY WHICH THE MANY EXIST, i.e. things are NAMED after Forms because they derive their BEING from them. This means that εἶναι in line 9 is an existential verb, not a copula. This is corroborated by the εἶναι of line 12, for after saying that μέθεξις, Participation, is a mere verbal variant of μίμησις, Imitation, Aristotle explains their essential identity by adding in explanation (γὰρ) that the Pythagoreans said things EXISTED by Imitation of Numbers, Plato by Participation - which raises another variant reading, to be discussed on the next page.

Hence, I conclude that λέγεσθαι is to be taken with both παρὰ ταῦτα and κατὰ ταῦτα, and that τῶν συνωνύμων is genitive after κατὰ μέθεξιν, despite its position, and this of course requires the excision of τοῖς εἴδεσιν as a gloss, and that εἶναι is used existentially. The passage, then, reads:"Things of this other sort, then, he called Ideas, and sensible things, he said, were all named after these, and in virtue of a relation to these; for the Many existed by Participation in their 'synonyms' (Ideas that have the same name as they)."

1. Loc. cit. 2. Loc. cit.

Up to line 10, then, we accept the manuscript reading, but with the excision of τοῖς εἴδεσιν as a gloss. Now one might think that in line 12, τῶν ἀριθμῶν is understood after μεθέξεις,[1] whereas τῶν εἰδῶν after μιμήσεις in lines 13-14 is surprising, since the Pythagoreans held no Ideas. So Jackson[2] transposes τῶν εἰδῶν from line 14 to 12. This gives excellent sense, but, as Gillespie[3] says, it does not explain how the mistake arose in the text. He prefers simply to excise τῶν εἰδῶν as a gloss on a par with τοῖς εἴδεσιν in line 10 - and we might add with τὰ εἴδη in line 22.[4] Aristotle, he says, is thinking of the Pythagorean Imitation of Numbers and the Platonic Participation in Forms, but as the Form had its origin independent of Pythagorean Number, τῶν εἰδῶν can only be connected with Participation in lines 13-14 and so is better omitted. Ross[5] explains similarly that τῶν εἰδῶν is not needed with μεθέξεις in line 12 - which is there used absolutely - and is better excised from line 14, since the 'leaving it an open question' refers to both Pythagoreans and Plato, as the plural verb shows.[6] But in his later work,[7] he apparently retains τῶν εἰδῶν in line 14, as his translation shows, accepting it as a piece of carelessness on the part of Aristotle. The question does not really affect the meaning, but I again prefer Ross' earlier reading to his later, and accept his translation as follows:"Only the name 'Participation' was new; for the Pythagoreans say that things exist by 'Imitation' of Numbers, and Plato says they exist by Participation, changing the name. But what Participation or Imitation could be they left an open question."

Analysis of this Passage. A notable feature about this passage is the mixed use of two different constructions: the finite verb to denote Aristotle's own comments or inferences, and the accusative and infinitive to denote what Plato or the Pythagoreans are reported to have said. These two sets of statements must be kept separate. If we do this and make use of the interpretations of the readings of the whole passage given above, then, omitting the statement about the introduction of Ideas, we have the following statements: Plato is said to have held i) that sensibles are named after Ideas; ii) that sensibles are named in virtue of a certain relation to the Ideas; iii) that this relation was Participation in the Ideas, by which sensibles exist, i.e. are what they are. The Pythagoreans held iv) that sensibles exist by Imitation of Numbers. Aristotle asserts as his own judgment v) that neither Plato nor the Pythago-

1. See page 100 below. 2. See Ross, Metaphysics I.163-4.
3. Journal of Philology XXXIV.152. 4. See pages 84-5 above. Naturally it is not necessary to accept Gillespie's excision of the words in question in line 22 because they have been excised in lines 12 and 14 as a gloss; to excise the words, however, in all three places is plausible.
5. Aristotle's Metaphysics I.163-4 ad 987b12.
6. van der Wielen, Die Ideegetallen van Plato 4, to the same effect
7. Plato's Theory of Ideas 154.

reans gave any explanation of Participation or Imitation respectively, and vi) that, by implication, Participation was the same as Imitation, since only the name was changed, i.e. was different.

Now the resemblance in this passage between Platonism and Pythagoreanism is confined to one point only: the mode of existence of sensible objects. The manner after which sensibles are named, point i, and the ontological basis of this naming, point ii, have no corresponding tenet in Pythagoreanism, so far as this passage is concerned. The resemblance is confined to iii and iv, as is clear from the μὲν , δὲ in lines 11-12 - but the difference, the change of name, is not here relevant, and will be discussed in section iii, under Secondary Differences. Aristotle does not assert that Plato thought that his Participation was the same as Pythagorean Imitation but this is his own inference. To have been able to make such a statement, Aristotle must have formed in his own mind some sort of conception of each of these terms, and since he states that neither Plato nor the Pythagoreans gave any clear explanation of them, such conception of his must have been in the nature of an inference from their use of the words or from his deduction of what the processes entailed - in terms of his philosophy, since that is his regular practice. Therefore, in order to explain his implied statement that Plato's Participation was the same as Pythagorean Imitation, it is necessary to ascertain from elsewhere in his works, what sort of conception Aristotle had formed of these two tenets - elsewhere since here no explanation whatever is given of Imitation besides the fact that things are said to have existed by Imitation of Numbers, and that things existed by Participation in Ideas, as a result of which things had the same names as their corresponding Ideas.

Some Difficulties in the Interpretation of the Resemblance between Participation and Imitation. Because Plato held separate Ideas, and because Aristotle, as has been said,[1] tended to interpret Participation, in default of any clear statement by Plato, as the Ideas serving as Patterns for sensible things, some critics assume that here Aristotle is asserting the virtual identity of the mode of the existence of things in Plato - as copies of the Ideas - with the mode of existence of things in Pythagoreanism - an alleged patterning of things after Numbers in the same sense, i.e. that the Pythagorean number 2 was a copy of an Ideal Two. This at least is how I understand such a statement as, for example, Cornford's,[2] that "One root of the assertion of Forms is Pythagorean Numbers as the Being of things. So the resemblance between Participation and Imitation. This makes Forms entities with separate existence in the intelligible world, where they replace Pythagorean Numbers as the reality which appearances represent." In other words, Cornford, if

1. See pages 76-78 above. 2. Plato's Theory of Knowledge 9-10.

I interpret him aright, virtually adopts Burnet's position, that Socrates took over a Pythagorean inchoate Theory of Ideas, but because he takes the Platonic Socrates as expressing Plato's own beliefs, in this respect at least, and not those of the historical Socrates, he adopts the same interpretation but applies it to Plato who, in his earlier dialogues, is said to have taken over a Pythagorean Ideal Theory, but to have extended such Ideas to all general concepts, whereas they had limited them to mathematical concepts. It has, however, been shown[1] that there is no question whatever of Pythagorean Ideas - their Numbers were phenomenal, not separate and intelligible. The error in this and similar interpretations of this resemblance is twofold: it takes the resemblance to have been in Plato's mind instead of in Aristotle's, as has been pointed out on the previous page, and interprets 'Imitation' either by assigning to it a meaning deduced from the meaning adopted for Participation[2] or by giving it the meaning which the word naturally suggests - but the correct procedure is to fix its meaning by Aristotle's conception of it, as revealed in A.v. Let us here do so

What Aristotle means by Participation, in Plato's Earlier Theory of Ideas, has been dealt with above.[3] To adopt the view most appropriate to the present passage, it is a metaphor expressing the mode of the coming-into-existence of sensibles if they were made like their patterns, the Ideas - except that Aristotle denies that Plato made any metaphysical use of a Patterner, so to speak. But he does not conceive Pythagorean Imitation as the mode of coming-into-existence of things as copies of Numbers. Although Ross[4] has suggested that Justice was like 4 - that is, :: , because Reciprocity, the definition of Justice, involves two persons and two objects, this is not the impression that Aristotle gives of the Pythagorean conception of Justice, much less of its resemblance to the number 4. As stated above,[5] Aristotle understands by Imitation that Numbers were made the Essences of things in accordance with the Pythagorean method of definition. According to this, the Essence of the thing, to use Aristotle's terminology, was that Number which revealed the same characteristics as were embodied in that definition; and as for Aristotle the Substance of a thing, its Essence, determined its shape, he inferred that, in terms of his own philosophy, the Pythagoreans made things resemble Numbers. Justice was defined as Reciprocity; 4, as the first example of this, was the fix Essence of Reciprocity and so of Justice; but if 4, or Number in general, was the Essence of Justice, or things in general, then, as Aristotle conceived it, things imitated Numbers.

1. Pages 4 and 12 above.
2. Cp. Taylor, Commentary on Plato's Timaeus 33:"The relation of things to Ideas in Timaeus is Mimesis - the standing Pythagorean word."
3. Pages 76-8 above.
4. Plato's Theory of Ideas 218.
5. Pages 38-40.

This seems to me to be quite a different matter from saying that things were patterned after Numbers by a hypothetical Demiurge.

Two Suggested Solutions. Now if, taken in the senses in which Aristotle has previously been shown to have understood the words, there does not seem to be any clear resemblance between Imitation of Numbers and Participation in Ideas, there are two possible ways out - for Aristotle is so precise here that some explanation which suits the facts must surely be possible. One way is to seek some other explanation of Imitation, and the other is to seek some other explanation of Participation. But we have examined all the evidence that could show what Aristotle meant by Imitation, so that this alternative is out of the question. Is it, then, possible to find some other explanation of Participation? Yes, it is. In fact, there are two possible alternatives. We shall take up the first alternative here.

This is the explanation which Field,[1] among others, has given to the passage, that the relation between Participation and Imitation was intended to refer to a resemblance between Pythagoreanism and Platonism in respect of each having anticipated his own formal cause to some extent. That this is true in regard to Imitation has, I think, been made clear on the previous page. Numbers were the Essences of things, according to Aristotle's conception of Pythagoreanism, and this he expresses in the passage discussed, briefly, by saying that "The Pythagoreans say that things exist by Imitation of Numbers", sc. because, as their Essences, Numbers were a sort of formal cause of things, but, we may add, the Pythagoreans treated the matter too simply.[2] Now if Aristotle also interpreted Plato's Ideas as formal causes, so that when he says, "Plato says they exist by Participation, changing the name," he means that this relation of Participation virtually or actually made Forms the formal principle of things, then it is clear what the resemblance is - it is that both Plato and the Pythagoreans had this in common, that both anticipated his own formal cause, the Pythagoreans by making things imitate Numbers, Plato by making things participate in Ideas. And that this is, in fact, just how Aristotle understood the Forms in the Early Platonism, is clear from one of the arguments against the Forms in that part of A.ix which criticises the Early Theory, since it is paralleled in M.v[3]:"Again, it would seem impossible that the substance and that of which it is the substance should exist apart; how, therefore, could the Ideas, being the substance of things, exist apart? In the Phaedo the case is stated this way...yet the things THAT SHARE IN THEM do not come into being." The capitalised words show that Aristotle means Participation; the reference to the Phaedo and the place of the reference in A.ix shows that he means the Early Theory of Ideas; 'substance' indicates that he is referring

1.Classical Quarterly XVII.122. 2. Metaphsyics 987a21-22.
3. 991b1-6 = 1079b36 -0a2.

to the Ideas as Essences or formal causes. And if this passage was written as it now stands, i.e. as referring to the Early Theory of Ideas - on account of its position - it is difficult to see what else Aristotle could have meant. Neither Plato nor the Pythagoreans gave any clear explanation of what they meant, the one by Participation, the other by Imitation; but, in searching for anticipations of his own formal cause, Aristotle affects to see an anticipation, albeit expressed too simply, of his formal cause, in the manner in which he interprets their method of definition - it amounts to making Numbers the Essences of the things defined/- and Plato's Participation made Ideas, in which things participated, their Essence or formal cause. In this respect both agreed insofar as they anticipated his formal cause, but Plato spoke not of Imitation so much as of Participation, hence his addition, "changing the name."

There is, however, another method of interpreting this resemblance. In 987b21-22 Aristotle says that the Numbers in Platonism come from "the Great and the Small by Participation[1] in the One." Now this clearly refers to the Later Theory of Idea-Numbers,[2] and when he sums up anticipations of his formal cause, he again clearly has in mind the later Idea-Numbers:"The Essence, i.e. the substantial reality, no one has expressed distinctly. It is hinted at chiefly by those who believe in the Forms; for they do not suppose either that the Forms are the matter of sensible things, AND THE ONE THE MATTER OF THE FORMS,..... but they furnish the Form Forms as the Essence of every other thing, and THE ONE AS THE ESSENCE OF THE FORMS".[3] If, then, the sentence 987b10-14 referred to the later Idea-Numbers, we should have fairly well attested evidence that Aristotle noted a resemblance between Plato and the Pythagoreans in the anticipation of his own formal cause, the latter by making Numbers the Essence of things, the former in making Ideas, which are Numbers in respect of their origin, the Essence of things. So Ross[4], that "Aristotle points out the affinity between the part played by Numbers in the Pythagorean theory and the part played by Ideas in the Platonic....and probably had in mind chiefly the later Theory of Idea-Numbers." Again,[5] "The Pythagoreans said Justice was Fourness...So Plato did not identify Ideas with Numbers, but assigned Numbers to the Ideas.....Thus Plato's assignment of Numbers to Ideas is on a par with Pythagorean Justice ≡ 4." Further support for this interpretation comes from two other sources. Taylor[6] takes the Participation of everything in the Forms to mean that the elements of the Forms are the elements of all other things, and more clearly Brommer[7], that Plato thinks Ideas are causes in the same way as the

1. κατὰ μίθεξιν.
2. Cp. Journal of Philology X.292.
3. 988a35-b6.
4. Plato's Theory of Ideas 161.
5. Op. cit. 218, 220.
6. Plato the Man and his Work 508.
7. Mnemosyne XI.iv.268.

Pythagoreans, i.e. the elements of Numbers are those of all things, but he differs in that the Pythagoreans took Numbers as causes μιμήσεις , Plato as μεθέξεις .

Could one find an explanation for a reference to Idea-Numbers in 987b10-14, which seems prima facie to conclude the account of the Early Theory of Ideas, or to be part of that account, if the details about mathematical numbers also belonged to that theory? If one could understand τῶν ἀριθμῶν with μεθέξεις in line 12, and exclude τῶν εἰδῶν in line 14, then the account of the Early Theory would definitely end at 987b10, and Aristotle would be passing directly on to Idea-Numbers - "Only the name Participation was new; for the Pythagoreans say that things exist by Imitation of Numbers, and Plato says they exist by Participation (sc.in Numbers, i.e. Idea-Numbers), changing the name. But what Participation or Imitation could be they left an open question." He then goes on to explain Mathematicals, which would then also belong to the Later Theory. Another possibility is that Aristotle first wrote A.vi without this sentence, passing directly from 987b10 - things are named after Ideas by virtue of Participation, by which sensibles exist - to 987b14ff - the account of Mathematicals. Only at 987b22 does Aristotle pass from an account of Platonism to a list of resemblances and differences. Perhaps having reached this point, or perhaps in reading over his work, Aristotle may have realised he could add the resemblance alleged between Participation and Imitation and as he had spoken about Participation in 987b10, he added as a sort of parenthesis this extra point of agreement without realising that he had cited Participation there in connection with the Early Theory, whereas his parenthesis referred to Participation in the Later Theory. This implies that Plato spoke of things existing by Participation in the Forms in both the Early and the Later Theory, and this has, I believe, come out in the discussion above. This was the easier for Aristotle to have done since Plato himself gave no clear explanation of Participation at all; but Aristotle interpreted it, for the sake of his investigation into anticipations of his causes, as virtually making Ideas the formal causes of things, especially in the Later Theory, but perhaps also in the Earlier.

Hence, because he is seeking anticipations of his own formal causes, Aristotle affects to see a resemblance between Pythagorean Imitation, by which he means that, according to the Pythagorean method of definition, Numbers as the Essence of things were their formal causes, and Platonic Participation, by which he means that in the Later Theory of Idea-Numbers, just as the One was the formal cause of Ideas, so Ideas were the formal causes of things, as appears from the capitals on the previous page. But it is just possible that this passage, as its position suggests, refers only to the Early Theory, in which Ideas held the same relation to sensibles as did the Later Idea-Numbers.

Section iii. The Secondary Differences.

The List of Secondary Differences. These are interspersed among the list of resemblances and differences, and to them we add a reference from the Physics.

1. "Only the name (Participation) was new," 987b10-11, and "Changing the name (Participation instead of Imitation)", 987b13.

2. "But positing a dyad and constructing the Infinite out of the Great and the Small, instead of treating the Infinite as one, is peculiar to him," 987b25-26, and "His making the other entity besides the One a dyad was due to the belief that the Numbers, except those which were prime, could be neatly produced out of the dyad as out of some plastic material," 987b33-8a1, which he criticises in 988a2-7.

3. Physics 203a4-16:"Only the Pythagoreans place the Infinite among the objects of sense (they do not regard Number as separable from these), and assert that what is outside the heavens is infinite. Plato, on the other hand, holds that there is no body outside (the Forms are not outside because they are nowhere), yet that the Infinite is present not only in the objects of sense but in the Forms also. Further, the Pythagoreans identify the Infinite with the Even.... But Plato has two Infinites, the Great and the Small."

4. 987b29-32:"His divergence from the Pythagoreans in making the One.[1]... separate from things... was due to his inquiries in the region of definitions."

All four secondary differences centre about one or other of Plato's resemblances to Pythagoreanism. Thus, the change in name deals with Participation which we have shown to have been said by Aristotle to have resembled Pythagorean Imitation in some respect. Like the Pythagoreans, Plato made the other element than the One an Infinite, but here he is said to have used two Infinites instead of one, and while the Pythagorean Infinite was both in sensible bodies and outside the heavens, the Platonic was in Ideas as well as in things, but not outside the heavens. And the other common element, the One, was separate for Plato. We shall deal with these differences in the order of shortness of comment.

4. The Separation of the One. The One is what Aristotle calls the formal element of the Forms. But, according to the main primary difference, the Forms were separate from things; therefore, the One was separate from things. But Pythagorean Number was phenomenal, so that the One, as element of such Numbers, would not be separate.

This point, then, is a corollary of the original separation of Forms, the Pythagoreans making their primary entities phenomenal, Plato making his primary entities separate, so that the One, as their formal element, was necessarily separate.

1. "Changing the Name." We saw above[2] that, in his account of

1. I have omitted "and the Numbers". See p.79. 2. Pages 95ff.

the resemblance between Platonic Participation and Pythagorean Imitation, Aristotle states as his own deduction or observation that while these two conceptions were similar - in this respect, that each anticipated to some extent his own formal cause - they differed in name. Now we deduced in the analysis of the passage where this statement occurs, that it does not allege that Plato borrowed this relationship from the Pythagoreans, but that Aristotle seeing in Participation and in Imitation anticipations of his own formal cause, pointed out the resemblance between the two conceptions in this one respect only. This means that Plato did not borrow Imitation as an explanation of the existence of sensibles, and then for some reason or other made use of a different terminology for it, but both the comparison of Participation with Imitation and the notice of the difference in terminology were Aristotle's own. Therefore, "changing the name" means only that in fact Plato made use of a different name from the Pythagoreans for expressing the mode of existence of sensibles, but Aristotle gives no hint as to the origin or derivation of this name. As we are here concerned only with what Aristotle testifies, this question must be left over for discussion in Part II.

3. The Separation of the Infinite. The passage from the Physics marks three points of difference in the treatment of the Infinite. Firstly, the Pythagorean Infinite was in sensible bodies because their Numbers - of which the Infinite was an element - were phenomenal, not separate. Plato's Infinite was similarly an element of sensibles and of Numbers[1] - Idea-Numbers - but since the latter were separate from sensibles, Plato's Infinite differed from the Pythagorean in being in Forms, which were separate from things, as well as in sensibles. This is, then, a corollary of Plato's fundamental separation of Forms.

Secondly, the Pythagorean Infinite extended beyond the confines of the Universe, but Plato asserted that beyond the Universe was nothing. This is more astronomy than Metaphysics, which is our immediate concern, but we might note that as the Pythagorean Universe was constituted from Limit and Unlimited, it was itself limited in the sense that it was a part of the Whole delimited off from the Unlimited which extended everywhere. But for Plato the Universe was finite in an absolute sense, and in any case, as we shall see presently, he did not actually talk of the Infinite but of its analogue, the Great and Small. As for Aristotle's statement that the Ideas were nowhere, compare Ritter's[2] telling remark that the Ideas were everywhere and nowhere.

1. We saw on page 82 that while the One was the formal element of the Forms and the Forms of the things of sense, the analogue of the Infinite, the Great and Small, was common to both, 987b18-22 and 988a10-14.
2. The Essence of Plato's Philosophy 221-222.

The third point, that the Pythagoreans identified the Infinite with the Even, but Plato identified it with the Great and the Small, might be compared with 988a26-7:"Plato spoke of the Great and the Small, the Italians of the Infinite." This properly belongs to the next question, 2, since it means that for the Pythagoreans the Infinite was one thing - the Even,- for Plato two - the Great and the Small. We turn, then, to the investigation of what Aristotle meant by calling this material element two - a dyad - since he frequently calls it 'the Great and Small'. That is, is this element a dyad because the Great is one thing, the Small another, or in some other sense?

2. Plato's Analogue of the Infinite as a Dyad.

An Apparent Contradiction concerning the Infinite as a Dyad. In the last reference quoted above, Physics 203a4-16 sub fin., the difference between Plato's and the Pythagorean Infinite was said to be that the latter was a single entity, equated with the Even ,whereas the former was two things, the Great and the Small. It is one of Aristotle's weaknesses as a witness that he sometimes affects to take certain tenets literally, and since he often elsewhere calls Plato's element not the Great and the Small, but the Great and Small, it is really not two things but one thing with two characteristice, as Ross[1] says, referring us to Physics 206b28-33. For the explanation, then, of the two-fold nature of Plato's Infinite we must turn to this reference.

Physics 206b28-33:"Plato made the Infinites two in number because it is supposed to be possible to exceed all limits and to proceed ad infinitum in the direction both of increase and of reduction. Yet although he makes the Infinites two, he does not use them. For in the Numbers the Infinite in the direction of reduction is not present, as the Monad is the smallest; nor is the Infinite in the direction of increase, for the parts number only up to the Decad." This is explicitly given as Plato's reason for making the Infinites two in number, i.e. as a principle having two characteristics, and refers especially, if not exclusively, to the rôle of the Infinite in generating Numbers, apparently Ideal Numbers, since that is the natural meaning to be assigned to 'Monad' and 'Decad'. Now I do not wish further to examine the generation of Numbers,- this will be dealt with below - but only with the nature of this Infinite. And if it can proceed ad infinitum in the directions both of increase and of reduction, it would seem to be what can be called a two-way continuum; that is, it is a continuum capable of infinite increase- the Great,- and infinite reduction - the Small. Now let us apply these conclusions - that the Infinite was two-fold in the sense of having the capacity of infinite extension and of infinite reduction, and that it was used or rather was supposed to be used -

1. Plato's Theory of Ideas 184.

for Aristotle denies that it was in fact really so used - especially in the generation of Ideal Numbers ; let us apply this to the source for the Secondary Difference here discussed, 987b33-8a7.

987b33-8a7:"His making the other entity besides the One a dyad was due to the belief that the Numbers, except those which were prime (ἔξω τῶν πρώτων), could be neatly produced out of the dyad as out of some plastic material (ἐκ τινος ἐκμαγείου).[1] Yet what happens is the contrary; the theory is not a reasonable one. For they make many things out of the matter, and the form generates only once, but what we observe is that one table is made from one matter, while the man who applies the form, though he is one, makes many tables. And the relation of the male to the female is similar; for the latter is impregnated by one copulation, but the male impregnates many females; yet these are the analogues of those first principles." Now applying what we have discovered above, one might say that this agrees with Physics 206b28-33 in stating that the Infinite was given a two-fold nature in order to generate Ideal Numbers -"due to the belief that the NUMBERS could be neatly produced out of the dyad" - and while it does not state in what sense the Infinitewas a dyad, it was apparently in the sense of Physics 206b28-33 - as a two-way continuum, But a closer examination must cast doubts on this. How could a plastic material be regarded as a two-way continuum? Aristotle before had objected that full use was not made of the dual nature of the Infinite, but here he says thatwhat happens in actual fact is the very opposite of what Plato alleges; and he goes on to talk, not of Ideal Numbers, but of sensible particulars - tables, etc. - and cites analogues which, as we shall see, have nothing whatever to do with Ideal Numbers but only with the world of sense. Cherniss[2] indeed is correct - at least on a prima facie inspection - that the reason for the Infinite being a dyad is different here from the reason adduced in the Physics. Indeed, the apparent contradiction goes further; for if we include the context of each of these references, we shall find, according to Cherniss,[3] that in Physics 203a9-10 the Great and Small is an element of things only because things are caused by the Ideas, of which the Great and Small is an element - and the same is implied by Metaphysics 987b18-22 - whereas in Metaphysics 988a10-14 the Great and Small is used as element twice over, once for Ideas and again for things.[4]

1. Ross, Plato's Theory of Ideas 176 n.3, that the word means a plastic material. 2. Aristotle's Criticism of Plato 108 note, cp. 110. 3. Op. cit. 108-9.
4. Similarly Robin, Platon 142 and 144; van der Wielen, Die Ideegetallen van Plato 99; and cp. Ross, op. cit.221:"Aristotle suggests that the matter of sensibles and of Ideas is identical, but it is incredible that Plato took the same principle twice over". As our concern is what Aristotle believed, this is tantamount to saying that the matter of Ideas and of sensibles was identical.

But I believe Cherniss is wrong in all three respects: i) 988a 10-14 neither says nor implies that the same Great and Small is used twice over. It reads:"The underlying matter...of which the Forms are predicated in the case of sensible things, and the One in the case of the Forms, viz.....a dyad, the Great and the Small." The very fact that it is a dyad indicates that we are not here dealing with a one single thing, and in any case, if the underlying matter of such and such a sphere and such and such a cube is said to be gold, this does not necessarily mean that the same piece of gold is a substrate common to the two figures. But we shall deal with this below. ii) 987b18-22 and 203a9-10 do not necessarily imply that the Great and Small is an element of sensibles only incidentally. The former reads:"Since the Forms were the causes of all other things, he thought their elements were the elements of all things. As matter, the Great and the Small were principles; as essential reality, the One; for from the Great and the Small, by Participation in the One, come the Numbers." Aristotle here details only the constitution of the Numbers, and states that the elements of these were also the elements of sensibles, but if they were so only incidentally, only by virtue of the presence of Forms in them[1], it would be rather ridiculous to cite this as the reason for these elements being the elements of sensibles: the Great and Small would hardly be called an element if present in things only as part of Forms which were present! Nor is 203a9-10 any better:"Plato holds.... that the Infinite is present not only in the objects of sense but in the Forms also." Since this is given as a difference from the Pythagorean Infinite, which was only in sensibles, I would rather take Aristotle to mean a numerically identical Infinite in both Forms and things than an Infinite immediately present in Forms and in things only because Forms are in things. But in actual fact Aristotle in both these references and in that quoted in i) has in mind the same tenet: that there is one Infinite in things, and another in Forms, but as both were Infinites he calls them by the same name, the Infinite or the Great and Small, just as the gold in the cube and the gold in the sphere, two separate pieces of gold, are still just gold. iii) Hence, I feel that his alleged contradiction is misplaced: the account of the reason for making the Infinite two-fold seems to be different in 206b28-33 and in 987b33-8a7 only because in the latter case the reason he gives for Plato's making the Infinite a dyad is a different one from that given in 206b28-33; although he talks about the generation of Numbers, these are different Numbers from those mentioned in 206b28-33. Can Plato have only one reason? Did he have only one kind of Number? Naturally if we assume that Aristotle is dealing with one and the same reason, with the very same Ideal Numbers, in both places, not only do the two

1. But Plato's Forms, in any case, were not immanent.

accounts contradict each other, but 987b33-8a7 by itself becomes full of inconsistencies, which account for the great variety of interpretations given to the meaning of 'the Primes',[1] to the generation of Numbers, and to the nature of the dyad.

If this passage refers to Ideal Numbers and the dyad as the material element of Ideal Numbers, as we showed above that Physics 206b28-33 does,- and nearly every commentator thus interprets it - what are we to make of the 'plastic material'? This occurs in Timaeus 50C not as an illustration of the matter of Ideal Numbers but of the Receptacle, which is the 'element', as Aristotle would term it, of sensible things. How could a plastic material be regarded as a two-way continuum? It is certainly not capable of infinite increase. How could Aristotle say, of Ideal Numbers, "they make MANY THINGS out of the matter"? Let us not mention male and female, much less tables. And yet these analogues are cited as evidence for the unreasonableness of the theory: "the theory is not a reasonable one. FOR they make many things out of the matter". Nor can Aristotle be changing the subject, for he makes this objection in connection with his observation that what happens is the contrary, and apart from the fact that for many lines nothing whatever has been said about the generation of sensible things, these words come immediately after his statement that Numbers could be neatly produced out of the dyad as out of some plastic material. Aristotle undoubtedly has his defects as a witness, but it is too easy to say he misunderstands whenever any difficulty arises. I suggest that it is rather the critics who have misunderstood. If one can get away from the idea that this passage is concerned with Ideal Numbers - is an elaboration of Physics 206b28-33 - the meaning becomes perfectly clear and there is no inconsistency. I shall explain this passage now, and deal with the difference between this passage and Physics 20628-33 later in this section.

Analysis of 987b33-8a7. This passage has been translated on page 104 above, where we gave some reasons for doubting that it dealt with the generation of Ideal Numbers. Now if it did in fact deal with the generation of Ideal Numbers, then the meaning of

1. Apart from the interpretation to be adopted presently, we may distinguish the following: Cherniss, Aristotle's Criticism of Plato 182 note 106, would read:"Except the odd numbers", doubtless following Alexander, cited by Ross, Aristotle's Metaphysics I. 173 ad 987b34. Ross himself narrows this down to a sub-division of odd numbers, in effect 3,5, and 7, op. cit. 175 and Plato's Theory of Ideas 190, but Ideal Numbers are not subject to arithmetical operations, and the implied generation of Numbers on which these interpretations rest is really that of Xenocrates, as will be shown sub The Generation of Numbers below. More Platonic is that the Primes were 1 and 2, Taylor Mind XXXVI.22, Stenzel, Zahl und Gestalt 57 and 172, van der Wielen, Die Ideegetallen van Plato 130; nor can one object that 1 is not a number (Ross, Aristotle's Metaphysics I.175, Cherniss, loc. cit.) since Plato thought it was: cp. "The Monad is the smallest Number"in206b28-33, and cp. Mnemosyne XI.iv.267 with note 1.

"except the Primes" should offer no great difficulty: they would be a sub-division of Ideal Numbers which were not easily generated, or perhaps were not generated at all, and with several interpretations along these lines we have already dealt, in brief, in the footnote to the previous page. But, as has been said, the context, taken as a whole, does not fit in with the interpretation of this, for it passes on, after stating the origin of these Numbers from the analogue of the Infinite, to a criticism that Plato should not have found the reason for their multiplicity in that material principle, but rather in the form. The context, then, suggests that what is here dealt with is not Ideal Numbers at all, but a class of entity that is a plurality, sensible things in fact. The key-word is οἱ πρῶτοι , "the Primes", which can also be translated, "The first, sc.Numbers."

There are several passages in the Metaphysics where this use of the word occurs. 1080a26-27:"(The units) in the first 2 are associable with one another, and those in the first 3 with one another....; but the units in the 2-itself are inassociable with those in the 3-itself."1081b30-31:"All this is absurd and fictitiou and there cannot be a first 2 and then a 3-itself." This points to the identity of "the first 2 and 3" with "the 2- and 3-itself"; i.e. the FIRST NUMBERS are the Ideas of Number. 1080b22:"Another thinker says the first kind of number, that of the Forms, alone exists." Again, the FIRST NUMBERS are the Ideal Numbers. 1081a21-23:"For the first 2 will not proceed immediately from One and an indefinite dyad..." This makes the Two FIRST as an Idea-Number in respect of its derivation. Finally, 1083a30-35:"And if this is so, there must also be a 2 which is the first of 2's....Plato used to say...there must be a first 2 and 3, and the Numbers must not be associable with one another." The first part of the quotation shows that Ideal Numbers are FIRST in opposition to phenomenal Numbers, and the second part refers this to Plato, and further identifies the FIRST NUMBERS as Ideal Numbers in that they are not associable. For this reason, then, Trendelenburg[1] takes "the first numbers" in 987b33-8a7 to mean Ideal Numbers, and then, if the Ideal Numbers are excluded from what Aristotle is talking about ("except the first numbers"), what remains is sensible numbers. Hence, as Jackson[2] very rightly puts it, we could paraphrase the passage thus:"Plato makes the Unlimited a duality because this makes it easy to suppose the generation from it of (a plurality of particulars). Analogies show, however, that plurality must be looked for in the form, not in the matter." The bracketed phrase is the meaning of ἀριθμοὺς ἔξω τῶν πρώτων , and this meaning is deduced from the classification of numbers in Physics 219b6-8:

"Number, we must note, is used in two senses - both of what is

1. Cited by Ross, Aristotle's Metaphysics I.173 ad 987b34.
2. Journal of Philology X.290-1.

counted (or the countable) and also that of with which we count." As the latter is Number par excellence, it is what is meant by the FIRST NUMBERS, and this being excluded, what remains is the other meaning of number given ad loc. -the countable, that which is counted, which is in fact the sensible particulars which are counted when we wish to point to a number of things. But, in fact,[1] in this passage it is the Ideas that are THE FIRST NUMBERS (inasmuch as they are combinations of the One and the dyad), so that when these are excluded sensible particulars are what is left.[2]

The fact that in most of A.vi preceding the passage here in question Aristotle is undoubtedly referring to Ideas or to Ideal Numbers, does not mean that in 987b33-8a7 he still has these in mind; why should he not tersely exclude these by the expression "except the First Numbers"? He is undoubtedly referring to sensible particulars when he alludes to the plastic material, to Male and Female, to tables. Nor must he necessarily mean Ideas or Ideal Numbers when he states "His making the other entity besides the ONE a dyad..." Plato had only two ultimate elements, the One and the dyad, and while these were the elements directly of Ideas or Ideal Numbers, the Great and Small was also an element in sensible particulars as he says in 988a10-14. For the further confirmation of this interpretation it is necessary to examine the analogues to which Aristotle next refers.

The Analogues. These analogues are not Aristotle's own similes; the reference "These are the analogues of those first principles" points to Plato's dialogues. In Timaeus 50A-C, which has nothing to do with Numbers, Gold is equated analogically with the Receptacle, which is there a principle of sensible particulars, and is called "some plastic material" (ἐκμαγεῖον) in order to show that the Gold is real, but the various shapes it assumes under the hands of the goldsmith are transitory and cannot rightly be called 'this' or 'that' but only 'of such a kind'. So the many sensible forms which the Receptacle receives metaphorically at the hands of the Demiurge are unreal, and only the Receptacle is real.

In Timaeus 50D the foregoing example is interpreted in animistic terms, the Receptacle becoming the Mother or Female. This is cited only to show that as the Male, Female and Offspring are 3, so three principles are required in Nature: Forms, Receptacle and sensible particulars. The whole point of these analogues is to make two points: that Becoming is transitory so that it is necessary to posit a third principle besides Ideas and things - the Receptacle - and that this, and not the sensible particulars, is real.

Now this Receptacle is interpreted by Aristotle - rightly or wrongly is not here the question - as "Matter", and his point is

1. Jackson, loc. cit. 2. There is no question here of the mathematical numbers since we are dealing with the derivation of those numbers which are derived from elements, and mathematical numbers were not so derived, 991b29-30, 1090b34-35.

that it is the cause of the multiplicity of sensible particulars, so his "They make many things out of the matter."[1] But Aristotle objects that this multiplicity does not arise from the nature of the matter, but from the form.[2] Turning to the Craftsman of Republic 596B, he says that one act of creation on the part of the Craftsman or Demiurge does not result in a plurality of tables, but that from one portion of matter only one table can arise; to obtain a plurality, the form has to be applied several times. Therefore, Aristotle understands Plato's matter as a principle of multiplicity, one application of the Form to the matter giving not one but the entire plurality of sensible tables; but he objects that this is unreasonable because what happens is the contrary: it is the repetition of the Form that gives the multiplicity. He takes Plato to mean that the female, at one copulation, brings forth an innumerable litter, but objects that it is the male that is capable of unlimited generation. Clearly this has nothing to do with Ideal Numbers: it concerns the generation of sensibles as a multiplicity. And lest it be thought that we are drawing too much out of the text, other passages are here cited to show that Aristotle believed that Plato derived the multiplicity of sensibles from the matter: one application of the Form produced in the matter not one table, but the whole plurality of sensible tables, the plurality coming from that matter.

1089a5-7:[3] "They thought it necessary to prove that that which is not is; for only thus - of that which is and some thing else - could the things that are be composed, IF THEY ARE MANY." Further on we have 1089a19-22:"What sort of Being and Not-Being, then, by their union PLURALISE the things that are? This thinker means by the Non-Being, the union of which with Being PLURALISES the things that are, the False." That is, Plato (this thinker) makes Non-Being (the other entity besides the One) the cause why sensibles (the things that are) are many, it pluralises them; this is apparently called the False because sensibles are not really real but only apparently so, as appeared from the metaphor of Gold in the Timaeus.

Now the Ideal Numbers are not a multiplicity: each is unique, and they number probably only 10. If then the dyad is the cause of the multiplicity of sensibles, it must be another dyad that is the element of Ideas and Ideal Numbers, since these are not many. Hence what Aristotle is saying in 987b33-8a7 is that Plato differed from

1. Ross, Aristotle's Metaphysics I.lxii, takes this to refer to Xenocrates; but there is no indication of any change in reference throughout A.vi in which chapter Plato is named. Instead of interpreting this "many" as a multiplicity as Ross does, op. cit.176, Stenzel, apparently following Alexander, takes it to mean that the dyad makes everything double, Zahl und Gestalt 54.
2. Hence Ross is wrong, Plato's Theory of Ideas 201, that "the Form generates only once" justifies van der Wielen - this is an objection, not a report.
3. This passage will be further examined in the next chapter.

the Pythagoreans, who had only one Infinite - that in sensibles, since their numbers were phenomenal - Plato having two Infinites, one in sensibles as here explained, a nd another in Ideas as is implied.[1] We can, then, paraphrase the whole passage thus: Plato has two ultimate principles, the One and a dyad. He differed from the Pythagoreans in making this dyad two-fold, one for Ideas and one for sensibles. The reason for thus making a different principle for sensibles than for Ideas was because he believed that numbered things, that is, not the first numbers by which we count but the plurality of countable things, could be neatly produced out of a different dyad than the Ideal Substrate AS A MULTIPLICITY, which principle he calls the Receptacle in the Timaeus, using as its analogues a plastic material and the Female, the Mother. But these very analogues show the opposite in Nature and in any case the theory is not a reasonable one. In the Republic he makes the craftsman create many tables by one act, but the multiplicity could only come from the repetition of the Form, not from the matter.

But we need to give other evidence for the existence of a different matter in Ideas and in sensibles, since many critics believe that 988a10-14 implies that the same material element is used twice over, once for Ideas and once for sensibles.[2] This cannot be directly attested, but is implied by the line of reasoning to which we next turn.

Two Different Infinites. 992a11-15: "Line comes from the Long and Short (i.e. from a kind of Great and Small), and the Plane from the Broad and Narrow, and Body from the Deep and Shallow," 1085a9-13:"..the Line, the Plane and the Solid. For some construct these out of the species of the 'great and Small'; e.g. Lines from the Long and Short, Planes from the Broad and Narrow, Masses from the Deep and Shallow ; which are species of the Great and Small." As Plato is characterised by the 'Unequal',[3] the above references can be shown to be Platonic by 1001b19-25:"But even if one supposes the case to be such that, as some say, Number proceeds from Unity-itself and something else which is not One, none the less we must inquire why and how the product will sometimes be a Number and sometimes a Magnitude, if the Not-One was Inequality, and was the same principle in either case," i.e. the same by analogy, and not numerically the same. So also 1090b37:"He makes spatial magnitudes out of some other Small and Great."

1. Thompson, Journal of Philology XI.18; Brommer, Mnemosyne XI.iv. 270; Burnet, Greek Philosophy 320; Ross, Aristotle's Metaphysics I.169, believe that Plato had two Infinites, one in sensibles another in Ideas. 2. See page 104 note 4 above. 3. See below
4. Hence Cherniss, Aristotle's Criticism of Plato 481-3 and Riddle of the Early Academy 22, is wrong when he denies that species of Great and Small were Platonic. He cites 992b13-18 to prove this, but the fact that Aristotle calls Lines, etc., a fourth class may well be his own terminology, not that of the Academy.

These references show that Plato derived Lines from the Long and Short, etc., which were species of the Great and Small; that Numbers came from some analogous species of Great and Small, perhaps the Many and Few,[1] or perhaps from some principles called simply the Unequals, but that, since Aristotle more generally states the elements to be the Great and Small simply, the Great and Small was the generic term under which these species, as Aristotle calls them, (but which must not be pressed too literally) were subsumed. Now it is admittedly a deduction not backed by any concrete evidence in Aristotle, but it seems to me that Plato might also have held similar 'species' of the Great and Small as the matter of sensibles, like the Hot and Cold, the Wet and Dry, to which Aristotle would also refer simply by the generic term, the Great and Small; but this sensible Great and Small differed from the Ideal Great and Small, from which came Ideal Numbers and Magnitudes, in being a principle of multiplicity, as explained on pages 109-110 above.

It is perhaps to these sensible 'species' of Great and Small that Aristotle refers in 1089b10-15, since he refers to others after he has listed all those referred to above as Ideal Substrates. "They do not go on to inquire how there are many Unequals besides the Unequal. Yet they use them and speak of Great and Small, Many and Few (from which proceed the Numbers), Long and Short (from which proceeds the Line), Broad and Narrow (from which proceeds the Plae), Deep and Shallow (from which proceed Solids); AND THEY SPEAK OF YET MORE KINDS OF RELATIVE TERM".

Hence, van der Wielen,[2] and more clearly Stenzel,[3] explain the Great and Small as only the simplest expression for the principle of the undetermined dyad, conceived in collective dimensions. That is, in its numerical aspect it was a time continuum, in its linear expression (the Long and Short) it was a linear continuum or indefinite extension in one dimension,[4] and so in the case of Planes and Solids it was indefinite extension in two and three dimensions.[4] This is the Great and Small as Ideal Substrate; as material substrate it was similarly various continua running from the extreme of Heat to the extreme of Cold, from the extreme of Dryness to that of Wetness, and so on, but characterised by its reduplicative power: it made sensibles many. This suits 987b33-8a7

1. For example, Cherniss, Aristotle's Criticism of Plato 481-2, maintains that these species of Great and Small were a development different from Plato's own and held by those who said the Many and Few; so Ross, Aristotle's Metaphysics I.lviii (but Plato's in Ross, op. cit. 169). Cherniss, op. cit. 484, refers these species to Speusippus, but he made Number come from One and Plurality, not from the Many and Few, and Ross, Plato's Theory of Ideas 208, cites 1090b37-1a1 and 1085a31-34 to show that Speusippus did not hold these species. 2. Die Ideegetallen van Plato 154.
3. Zahl und Gestalt 74 & 88. 4. Ross, Plato's Theory of Ideas 208.

perfectly, but does not suit Physics 206b28-33 quoted on page 103 above. Let us return to this, but first, since that passage deals with the generation of Ideal Numbers, investigate how Aristotle conceived this.

The Generation of Ideal Numbers. There is a number of references concerning the generation of Numbers used, but not always in the same way, by Ross,[1] van der Wielen,[2] and Cook Wilson.[3] My starting-point is those passages among the ones cited which make a clear reference to Plato. These are:

1081a21-25:"Nor can it be Ideal Number. For 2 will not proceed immediately from 1 and the indefinite dyad, and be followed by the successive Numbers, as they say '2','3','4' .....Units in the Ideal 2are generated...as the first holder of the theory said, from Unequals, coming into being when these are equalised." Plato is certainly meant by 'the first holder of the theory.'

1091a5-6:"Number according to him cannot be generated except from the One (sc. and an indefinite dyad)." Again, Plato is meant by 'him'. On these passages I base my interpretation and distinguish three points: a) the first number generated was 2, and the other numbers followed in serial order. b) The Ideal 2 is generated from Unequals when these are equalised. c) Number can only be generated from the One and a dyad. Let us test other references by the touchstone of these three points.

a) The first number generated was 2, and the other numbers followed in serial order. This is corroborated by a number of other passages, such as 1083a30-5:"...If the One is the starting-point, the truth about the Numbers must rather be what Plato used to say, and there must be a first 2 and 3, and the Numbers must not be associable with one another." Here Plato is named, but the reference does not add anything new; it suggests rather than states that 2 is the first Number generated, the next being 3. That these Numbers are not associable need not imply that they do not consist of units, but it does mean that they are not the objects of arithmetical operations. 1085a1:"But they deny this; at least they generate the 2 first." This corroborates that the 2 is the first Number generated. 1080a30-5:"...Ideal Number is counted thus:after 1, a distinct 2 which does not include the first 1, and a 3 which does not include the 2, and the rest of the Number series similarly." While this refers to counting rather than to the generation of Numbers, it shows that the Numbers were characterised by their serial order, which is in fact explicable only on the assumption that the Numbers were generated in their natural order.[4] Finally,

1. Aristotle's Metaphysics I.lix-lxiii; Plato's Theory of Ideas 188 and 194. 2. Die Ideegetallen van Plato 92 and 118-9.
3. Classical Review XVIII.254. 4. Ross, Aristotle's Metaphysics I.lxiv:"As distinguished by seriality, the Numbers must be generated in natural order."

there is a reference which connects this type of counting with the generation of Numbers, 1082b35-28:"...Whether we count and say '1,2,3', we count by addition or by separate portions. But we do both and it is absurd to reason back from this problem to so great a difference in essence."

If the Numbers were generated in serial order, and were not subject to arithmetical operations, those references which imply a generation of Numbers in haphazard order and make use of such operations as adding 1 or finding a mean - i.e. addition and division - cannot refer to Plato. But we shall deal with these references and the interpretations placed on them later.

b) The Ideal 2 is generated from Unequals, when they are equalised. One might think that Plato was not the only one to use this Equalisation were it not for 1088b28-30:"There are some who describe the element which acts with the One as an indefinite dyad, and object to the 'Unequal'..." Plato held the Unequal, and as Speusippus' other element was Plurality,[1] it would seem that it was Xenocrates who objected to the term Unequal as description of the dyad, the Great and the Small. It seems pretty definite, then, that all references to the Unequal and Equalisation refer to Plato. But it will be noticed that in the heading here we have suppressed the mention of the units of the 2. This will be dealt with presently, when enough information is available to show that in this respect Aristotle misrepresents Plato and why. We list, then, the passages referring to Equalisation and to Unequals.

1091a23-25:"These thinkers say there is no generation of the odd number, which evidently implies that there is generation of the even; and some present the even as produced first from Unequals - the Great and the Small - when these are equalised." This passage is often used to demonstrate that Plato did not generate odd numbers, but since Plato is meant by the 'some' who produce the even first from Unequals, and since these 'some' are not necessarily a part of 'these thinkers' but may be a different school of thought, this passage cannot be used to demonstrate that Plato did not generate odd numbers, only that he generated 2 from Unequals when equalised, and that this was the first number generated; for 'even' here seems to mean no more than the number 2. 1083b23-5:"Does each unit come from the Great and Small, equalised, or one from the Great, another from the Small?" Again Aristotle means that 2 is generated from the Great and Small by Equalisation; the question whether 2 had units will be discussed below. This passage continues further on, 1083b30-32:"But if each of the two units consists of both the Great and the Small, equalised, how will the 2, which is a single thing, consist of the Great and the Small?" These passages

1. Compare 1087b4-6:"...Some making the Unequal...matter for the One and others making Plurality matter for the One", et alibi.

show that it is particularly the 2 which is generated from the Great and the Small, as the Unequal, when this is equalised, and not odd numbers alone, as those interpretations of Plato's generation of Numbers assume that derive odd numbers as means between two even numbers, as will be shown sub Equalisation below. But that it was not only the Two that was so derived, as van der Wielen[1] asserts, but the other Numbers as well, appears from 1087b7-9:"The former (referring to note 1 on the previous page) generate Numbers out of the dyad of the Unequal, i.e. of the Great and the Small, and the other thinker we have referred to generates them out of Plurality, while according to both it is generated by the essence of the One." This last clause corroborates the next point,

c) that Number can only be generated from the One and a dyad. This enables us to reject, as un-Platonic, those references which refer to the 4 being generated by the definite 2 and the 8 from 4, as in 1081b21-7:"..They say 4 came from the first 2 and the indefinite 2...And similarly 2 will consist of the 1-itself and another 1; but if this is so, the other element cannot be an indefinite 2; for it generates one unit, not, as the indefinite 2 does, a definite 2." 1082a13-15:"For the indefinite 2, as they say, received the definite 2 and made two 2's; for its nature was to double what is received." 1082a29-32:"For let the 2's in the 4 be simultaneous; yet these are prior to those in the 8, and as the 2 generated them, they generated the 4's in the 8-itself. Therefore, if the first 2 is an Idea....."

Now, if these passages do not refer to Plato because not all Numbers are here generated from the One, but 4 is generated from the definite 2 and 8 from the 4, it is not Plato who described the indefinite dyad as what doubles. But the party here referred to was not Speusippus, since he rejected Ideas and the first 2 is called an Idea. Therefore, it was Xenocrates who used the dyad as that which doubles what it receives, and generated 4 from 2 and 8 from 4. Further, the first of these three passages refers to the 2 as consisting of two units (that one of these two units would be the One-itself seems to be Aristotle's deduction from the statement that the definite 2 consisted of two units), which reminds us of 1081a21-25, quoted above on page 112, that the 'units in the Ideal 2 are generated from Unequals,' and 1083b23-25, quoted on page 113, asking whether the units of this 2 come from the Great and the Small together, or one from each of these. I interpret this as showing that Aristotle here contaminates Plato's derivation of an Ideal Two, not having units but generated by Equalisation, with Xenocrates' Ideal Two, which had units, and was generated apparently by doubling the One. One can explain this contamination in that the passages

1. Op. cit. 128-9.

referred to occur in M.vii and viii, where Aristotle assumes that Number can exist in no other way than as an aggregate of units.[1] Further, if Xenocrates conceived Numbers as consisting of units, it would be to him that 1083b28-30 refers:"Again, how is it with the units of the 3-itself? One of them is an odd unit. But perhaps it is for this reason that they give 1-itself the middle place in odd numbers." Finally, to Xenocrates refers the conception of the dyad as the doubler, such as 1091a10-12:"And the very elements - the Great and the Small[2]- seem to cry out against the violence that is done to them; for they cannot in any way generate Numbers other than those got by doubling." This would indeed explain why in 1091a 23-25, quoted on page 113 above, Aristotle says that these thinkers say there is no generation of odd numbers; it is his own deduction along the lines indicated by 1083b36:"Not from the indefinite dyad, for its function is to double." These references to Xenocrates imply that his generation of Number was that 2,4,8 were produced by doubling; 3,5,9 were obtained by the addition of 1 unit; doubtless 6 was the 3 doubled and 7 was derived by the addition of a unit to this 6.

It seems to me that it is to this method of generation that 1084a2-7 [3] refers:"Clearly it cannot be infinite; for infinite number is neither odd nor even, but the generation of numbers is always the generation either of an odd or of an even number; in one way, when 1 operates on an even number, an odd number is produced; in another way, when 2 operates, the numbers got from the One by doubling are produced; in another way, when the odd numbers operate, the other even numbers are produced." That is, when 2 doubles, we get 2,4,8; the addition of 1 to these evens gives the odd numbers 3,5,9; and when these odd numbers operate, i.e. are doubled in their turn, we get 6 and 10, which agrees with the method of generation deduced above.

For these reasons I cannot accept the classical interpretation of Plato's generation of Number,[4] that the even numbers were derived by doubling, and the odd numbers were the means between two evens, which is taken, not as the addition of 1 unit, but as Equalisation. This is Xenocrates' mode of generation not Plato's, and in any case either Plato derived all numbers by Equalisation or at least the Two, certainly not the odd numbers alone, as we have shown.

We assert, then, that Plato derived the Two first, followed by the other Numbers in serial order; that this was described as Equalisation, and all numbers came from the One and a dyad.

1. van der Wielen, op. cit. 88-89, that because Aristotle conceived Number as a number of units, he assumed that this was what Plato also must have meant.
2. We showed on p.113 that Xenocrates held the Great and Small.
3. Ross, Aristotle's Metaphysics I.lix, denies the passage is Platonic; Cook Wilson, Classical Review XVIII.254, accepts it.
4. Classical Review XXIII.198, cp. Mind XXXVI.19.

Equalisation. Returning to Physics 206b28-33, quoted on page 103 above, we saw that this passage attested that for Plato the Infinite, with which we are now more familiar under the name of the Great and Small, was a two-way continuum: it had the power of proceeding ad infinitum in the direction both of increase and of reduction. This was used for the generation of Numbers, as Aristotle says there, and may be rendered in modern terminology as a time continuum. Now an example is given of this, but conceived as a linear continuum for the sake of clearness, in Physics 206b3-12 shortly before:"In a way, the Infinite by addition is the same thing as the Infinite by division. In a finite magnitude, the Infinite by addition comes about in a way inverse to that of the other. For in proportion as we see division going on, in the same proportion we see addition being made to what is already marked off. For if we take a determinate part of a finite magnitude and add another part determined by the same ratio (not taking in the same amount of the original whole), and so on, we shall not traverse the given magnitude. But if we increase the ratio of the part, so as always to take in the same amount, we shall traverse the magnitude, for every finite magnitude is exhausted by means of any determinate quantity however small." That is, in a finite magnitude, if we subdivide a line in a constant ratio, e.g. 2:1, we can never exhaust the line, which is as much as to say that 1 is the limiting quantity in the successive addition of the series $\frac{1}{2}$, $\frac{1}{4}$, 1/8..... But if the ratio is not preserved, we shall exhaust the line, i.e. the successive addition of any small fraction whatsoever must ultimately exceed 1. The former is, in a way, division, the latter addition, so that infinite division gives the opposite result to infinite addition - it never reaches 1, the other exceeds 1. Now the important point, overlooked by van der Wielen,[1] is that this is true of a FINITE magnitude, and is cited as an illustration by reductio ad absurdum of what an INFINITE magnitude is not. Therefore, in an infinite magnitude, we can never exhaust the whole, Infinity, whether we subdivide ad infinitum or add ad infinitum. So in 206b28-33, the Infinite proceeds in the direction both of increase (addition) and of reduction (division) without being exhausted. This example of the Line, then, could not have been used by Plato to illustrate his generation ofNumbers,[1] since it is finite. Plato's Great and Small must have been infinitely great in order to hold all the Numbers - not just 10 as Aristotle objects, but the indefinite repetition of the decad-series as in hundreds, thousands, etc.[2] As both the infinite and the finite line allow of infinite division, in the sense given above, the proceeding in the direction of reduction may have had no special significance or it may have been used to include Irrationals in

1. Die Ideegetallen van Plato 123ff. 2. Zahl und Gestalt 43-4.

the conception of Number.[1] Whether for this purpose Plato made use of side and diagonal numbers[2] is uncertain, but if so, this does not seem to have had any connection with the name, Great and Small, as Taylor[3] claims.

We see, then, that Plato's dyad was a time continuum in which the Numbers were set out at definite intervals, in serial order, and it may well be that by Equalisation Plato referred to the equality of the intervals between the Numbers, which is essential to the nature of seriality. Let us examine the relevant evidence on Unequals and Equalisation in order to establish this.

We have seen that Plato's elements are the One and the Great and Small, by being composed of which the Ideas are Numbers. Now Aristotle sometimes refers to these elements as the One and the Unequal. As examples of his use of the terms One and Unequal we have 1092b1-2:"Another thinker places the One as the contrary to the Unequal, treating the One as Equal..." That Plato is meant is shown by 'another thinker' (singular). This Unequal serves as what Aristotle calls the matter, as in 1087b4-6:"They make the contrary the matter, some opposing the Unequal to the One..."Other references naming the Unequal as opposed to the One are 1087b28-29, 1088b28-30, 1089b4-6, and 1092a28-29, which add nothing to the above. Now the explanation why Aristotle adds, in the first reference here quoted, 'treating the One as Equal', is that Aristotle's objection to these elements is that the Equal and not the One is the contrary of the Unequal, and this perhaps explains why he calls the two elements, not the One and the Unequal, but the Equal and the Unequal, in 1055b30-32, 1056a3-12, and 1075a32-36. It appears from these references, then, that Plato opposed to the One the Unequal as its 'matter', to which Aristotle objects that these elements are not true contraries.

Now elsewhere Aristotle names Plato's Matter the Great and Small, and that this and the Unequal were synonymous, at any rate in the particular context Aristotle has in mind in these references, appears from such references as 1088a15-16:"They treat the Unequal as one thing and the dyad as an indefinite compound of Great and Small," and perhaps more clearly in 1087b7-9:"The Unequal is a dyad of Great and Small.." Similar references are 1056a3-12, 1091a23-6, 1091b31-33, and the same conclusion is implied in 1083b23-2ø5.

Now most of the passages cited deal with either the use of contraries as elements, in which the use of the term Unequal is apposite, but Great and Small is not, or with Ideal Numbers in particular, and I believe that Aristotle terms Plato's elements the One and the Unequal only in respect of the generation of Ideal Numbers - not of Idea-Numbers in general, but of Ideas of Number in

1. Mind XXXV.427; Burnet, Greek Philosophy 320-1. 2. Mind XXXV. 429-430 and XXXVIII.45-47. 3. Mind XXXV.429-430.

particular. The only passages inconsistent with this conclusion are as follows: 1089b10-15:"..Yet they use many Unequals and speak of Great and Small, Many and Few (from which proceed Numbers), Long and Short (from which proceeds the Line), Broad and Narrow (from which proceeds the Plane), Deep and Shallow (from which proceed Solids)..." One might think from this that it was not only Numbers that were generated from Unequals, but I think not: this gives Aristotle's own reductio ad absurdum - if the material element of Numbers was an Unequal, and it was a Great and Small, why should not the other 'species' of Great and Small, like Long and Short, etc., also be Unequals? 1091b31-33 and 35 identify the Unequal with the Bad as in 988a14-15. But if the material principle in general was identified with Evil, this would apply equally to that of Numbers and to that of other Ideal entities. Therefore, Plato opposed the Unequal to the One in the generation of Numbers as a special form of the general principle, the Great and the Small. We turn now to the evidence concerning Equalisation.

1091a23-25:"..The even comes first from Unequals -the Great and the Small - when they are equalised, ἰσαζόντων ."
1081a23-25:"The units in the first dyad are generated at the same time, as he said who first said from Unequals when they were equalised, ἰσαζόντων , or otherwise." The 'he' means Plato.
1083b23-25:"Is each unit from the Great and Small equalised, ἰσαζόντων , or one from the Great, one from the Small?"
One might think from these references that only the Two was thus generated, but the first implies that all even numbers were so derived, the first even being the Two, but by implication the other evens also were derived by equalisation. And yet there are two other passages which show that all Numbers were so derived, although the word 'equalised' does not occur, but we have the Unequal. So 1087b7-12:"Numbers are generated for some out of the dyad of the Unequal, the Great and Small, by the essence of the One. For the one (i.e. Plato) saying the Unequal and the One are elements and the Unequal is a dyad of Great and Small, treats the Unequal and the Great and Small as being one," but they are one in definition, not in number. 1092b1-2:"Since...another thinker places the One as contrary to the Unequal, treating the One as Equal, Number must be treated as coming from contraries." These show that Plato derived not only even, but all numbers, from the One and the Unequal, and the natural conclusion is that the passages imply Equalisation.

What then is meant by Equalisation? The key to this expression lies in three points: 'Treating the One as Equal', generating Numbers from the Unequal 'by the essence of the One', and Aristotle's definition of the Unequal in 1022b34:"A thing is called unequal because it has not equality though it would naturally have it." In the series of Ideal Numbers one may distinguish two elements, the

One or Equal and the Great and Small. In this natural condition, the Great and Small has equality because in combination with the One or Equal, but when abstracted from Ideas of Number this Great and Small no longer has equality, because separated from the Equal, and so by Aristotle's definition is the Unequal. Now both 987b21-22 and 1087b7-12, quoted above, state that Numbers are generated from the Great and Small - the Unequal - by Participation in the One, or by the essence of the One. But Aristotle conceives the One as the Equal. Hence Numbers are generated from the Unequal by the Equal entering into combination with it, and this restores it (in the mind) to its natural condition of equality, as we stated above. Surely this is Equalisation. In other words, Equalisation is nothing more than a way of referring to the action of the Equal, the One, on the Unequal. Admittedly this is not the normal Greek use of the word ἰσάζω, and for this reason I offer an alternative suggestion by examining the various passages cited by Liddell and Scott to illustrate it.[1]

Iliad XII.433-5:"As an honest working woman holds the balance and raises the weight and the wool together, balancing (ἰσάζουσ') them, that she may win scant wages for her children." Here the two masses, the weight and the wool, are made equal; but in the generation of Numbers nothing is weighed, so this meaning is irrelevant.

Equally irrelevant are those passages referring to exchange, the estimation of the exchangeable value of goods which makes trade possible. So Nicomachean Ethics 1133a8-19[2]:"The builder must get from the shoemaker the latter's work and must himself give him in return his own. If then there is proportionate equality of goods, and then reciprocal action takes place, the result we mentioned will be effected. If not, the bargain is not equal and does not hold; for there is nothing to prevent the work of one being better than that of the other; they must therefore be equalized, ἰσασθῆναι ,..."

A usage that has been seized upon by modern commentators is that evidenced by Nicomachean Ethics 1132a6-10:"Therefore, this kind of justice being an inequality, the judge tries to equalise (ἰσάζειν) it; for in the case also in which one has received and the other inflicted a wound,.....the suffering and the action have been unequally distributed; but the judge tries to equalise things (ἰσάζειν) by means of the penalty, taking away from the gain of the assailant." Now if this were Aristotle's meaning, one would expect it to work out thus: a penalty is taken from the overplus of the Great so as to make it equal to the Small. That is, the Great is made smaller and the Small greater until their size is equal. We should then have two equal units, I suppose, which is the number Two. But despite 1081a23-5 and 1083b23-5, we have already[3] argued that Plato's Ideal Numbers did not consist of units, and in

1. I am not able to trace all the references given.
2. Cp. Nicomachean Ethics 1163b28-35. 3. Pages 112-5 above.

ony case how could any other Numbers be produced by such Equalisation apart from 2? However that may be, Robin[1] uses the procedure not of the whole of the Great and the Small, but makes piecemeal restitution by a liberal extension of the meaning. First he derives the 2; then, by doubling, the 4; he gets the 3 by splitting the difference, assuming a retrograde movement from the 4 to meet a progressive movement from the 2. One might perhaps in fairness agree that this splitting the difference is an arithmetical equivalent of mulcting, but there are more serious defects. 2 is not here derived by Equalisation; 4 is derived from 2 instead of from the One; the dyad is wrongly interpreted as the Doubler;[2] and the process of Equalisation can here be used only for the generation of odd numbers and not at all for evens. Other interpretations along these lines are even more faulty, for they make blatant use of arithmetical operations, which might do very well for mathematical but are out of place in the generation of Ideal Numbers. So Taylor[3] interprets Equalisation as striking an arithmetical mean, and D'Arcy Thompson[4] makes it the alternate addition and subtraction of a unit. Hence, none of the interpretations of modern commentators is satisfactory: none explains how 2 was derived by Equalisation and the other numbers by the same process, except van der Wielen[5] as corrected by Ross.[6] The former determines a line by the ratio 1:1, whence the 2, but he has to fall back on some other principle to derive numbers other than 2,4 and 8; the latter shows that just as 1:1 entails 2, so 2:1 entails 3, and so on. But in either case Equalisation is used only to generate 2 (and 4 and 8 in van der Wielen's version), whereas Aristotle implies that ALL NUMBERS were so derived, and we have seen[2] that Numbers were generated only by the One and not by the 2 or any other Number.

A last reference in Liddell and Scott is Aristotle's Politics 1265a38-b2:"There is an inconsistency too in equalising (ἰσάζοντα) the property and not regulating the number of citizens: the population is to remain unlimited, and he thinks it would be sufficiently equalised (ἀνομαλισθησομένην) by a certain number of marriages being unfruitful, however many are born to others, because he finds this to be the case in existing states." Aristotle here criticises in Plato's Laws the equalisation of property without the necessary steps being taken to equalise the population. What he means is more clearly expressed, but without the use of the key word, in 1265b13-16:"Phaedo, the Corinthian...thought that the families and the number of citizens ought to remain the same, though originally all the lots may have been of different sizes: but in the Laws the opposite principle is maintained." That is, equalisation is here

1. Quoted by Ross, Plato's Theory of Ideas 191. 2. See pages 112-5.
3. Plato the Man and his Work 512; Mind XXXVI.18-19.
4. Mind XXXVIII.52. 5. Die Ideegetallen van Plato 128-9.
6. Plato's Theory of Ideas 201-202.

used in the sense that the original 5,000 lots are all of equal size and allotted each to one family. When, then, a number of lots of equal size are allotted to that number of persons, the property of the State is said to be equalised. Apply this now to the Equalisation of the Great and Small. The Great and Small, the Unequal, represents the whole of the land to be divided up. It is divided up, not it is true into lots of equal area, but into time-divisions of equal size, into equal intervals in fact, and each interval is allotted to the successive Numbers. The interval between 2 and 3 is the same as that between 3 and 4, and so on. In this way the Unequal is equalised and the Numbers generated - as Ideal Numbers in a time-continuum, in successive serial order, with equal divisions or intervals between each.

Hence, I believe that Aristotle meant by the generation of Ideas of Number from the Unequal, when it is equalised, either nothing more than that these Numbers were generated from the Great and Small by the essence of the One, the Equal, or that, if the Great and Small meant, in the sphere of Number, a time-continuum capable of indefinite progression and regression, Equalisation was the determining of the Right Place, at equal intervals, in this continuum, of each of the Numbers, generated in serial order.[1] So we have the definition of Ideal Number in 1080a33-34:"Ideal Number: 1,2 without the first/1, 3 without the dyad...," and more to the point 1081a21-23:"For then the first dyad will not be generated from the One and the indefinite dyad and the other Numbers in succession, i.e. 2,3,4..." That this matter of counting was in fact the basis of Plato's generation of Number appears from 1082b35-8: "..Whether, when we count and say 1,2,3, we count by addition or BY SEPARATE PORTIONS. But we do both; and so it is absurd to reason back from this problem to so great a difference in essence." Aristotle thinks it absurd that Plato should distinguish Ideal from mathematical number simply because we can count in the way stated and not by successive additions of a unit, since both methods of counting are possible.

We conclude, then, that in the sphere of Number the Great and Small was a time-continuum; in the sphere of Magnitude it was Extension in 1, 2 and 3 dimensions, called respectively the Long and Short, the Broad and Narrow, the Deep and Shallow. These are distinguished by Aristotle from the manifestations of the Great and Small in the realm of sense, where they appear as sensible continua such as Hot and Cold, Wet and Dry, and which are characterised by the power of pluralising particulars resulting from the application to it, so to speak, of the Ideas in any particular case.

1. Cp. Ross, Plato's Theory of Ideas 203:"The One imparted definiteness, which is Equalisation."

It is the having two such principles, one for Ideas, the other for things, that Aristotle notes as distinguishing Plato from the Pythagoreans in 987b33-8a7, but in Physics 206b28-33 he notices the Great and Small only in its numerical aspect, and observes that this was different from the Pythagorean Even in being a two-waycontinuum.

Conclusion. In section i, we showed that Plato's primary difference from Pythagoreanism lay in the hypostatisation of Forms, of which the separateness of Numbers was a special case, and as a corollary of this his third kind of number, mathematicals, were intermediate between Ideas and things. In section ii, we showed that his resemblances to Pythagoreanism centred around his Later Theory of Idea-Numbers, namely, that he made the One and an analogue of the Infinite the elements of Numbers, i.e. of Idea-Numbers, as the Pythagoreans had made them the elements of Numbers, and that as their Numbers were the formal causes of things, according to Aristotle's interpretation, so Plato's Numbers likewise, whether these were Idea-Numbers or only one class of these, Ideal Numbers. It is this common anticipation of his own formal cause that Aristotle refers to in saying that Participation resembled Imitation. Thus, in a word, Plato differed from Pythagoreanism in his Early Theory, in the hypostatisation of Ideas, but resembled them in his Later Theory insofar as he made his Idea-Numbers consist of the elements, the One and the 'Infinite', and made these Numbers the formal causes of things.

Now Plato's secondary differences arise as differentiations of his points of agreement due to the fact that his Later Idea-Numbers, although derived from elements, were still hypostatised Ideas in the same sense as his Earlier Forms. So, although he made the One his formal element, it differed from the Pythagorean in this that, as the element of separate Ideas, it was separate from things; his Infinite, although the element of sensibles, was also an element in Ideas, and as the Ideas were separate it was also separate from things insofar as it was in Ideas as well as in sensible things; but this Infinite was two-fold in another sense as well - because Plato's Numbers were not in sensibles as the Pythagorean phenomenal numbers were, it was not a single principle like the Even, but a two-fold continuum; and finally, Plato used a different term from the Pythagoreans to describe the relation between things and their formal element, namely Participation - this however is an incidental note and not a secondary difference in the same sense as the previous three differences.

It remains to determine whether by the resemblances alleged between Platonism and Pythagoreanism Aristotle meant anything more than casual agreement; whether, in fact, Plato borrowed from or was influenced by Pythagoreanism. To this we next turn.

Chapter 3. Ἀκολουθοῦσα.

In A.vi.1 Aristotle states:"After the systems we have named came the philosophy of Plato, which in most respects followed these thinkers, but had peculiarities that distinguished it from the philosophy of the Italians." The problem before us is two-fold: i) to determine the meaning of the word 'followed' (ἀκολουθοῦσα) and ii) to determine what relationship between Plato and the Pythagoreans Aristotle had in mind when he said that the former followed the latter.

i) The Meaning of ἀκολουθοῦσα: There are three interpretations maintained by modern commentators of the meaning of this word. Cherniss[1] holds that the word could mean either that Plato consciously followed the lead of the Pythagoreans or that his philosophy did in fact agree with theirs. Ross[2], in his earlier work, agrees with this interpretation, saying that it is doubtful whether the word means that Plato's system was based on the Pythagorean or merely that it resembled it. Secondly, Field[3] holds that the word implies a little more than independent agreement, but does not mean that Plato began as a follower and subsequently diverged. But he does not make it clear whether, by the second part of his statement he would have accepted the view that Plato began as a follower of Socrates and Cratylus and subsequently fell under Pythagorean influence, and in consequence modified his beliefs. Finally, there is Ross' later belief,[4] that the word probably means 'resembled' rather than 'originated from', and he refers to Bywater's note on Aristotle's Poetics 1449b9.[5] Here Bywater decides that the word does not necessarily mean 'to follow after' in order of time, but may very well mean 'to agree with'. This is indeed clear from Poetics 1449b9-12, translated by Bywater[6] as follows:"Epic poetry has been seen to agree with tragedy to this extent, that of being an imitation of serious subjects in a grand kind of verse. It differs from it, however, in..." Clearly epic poetry did not follow tragedy in order of time, but rather the contrary, so that epic poetry could not have been influenced by tragedy. And the use of the word here seems parallel to its use in A.vi.1 since here it is contrasted with 'it differs from' just as there it is contrasted with 'peculiarities', and 'in most respects' is a limitation corresponding to the limitation of 'to this extent that...'. Hence, it seems to me that the word asserts no more than agreement, but it is unjustifiable to say it means INDEPENDENT agreement,[3] for while epic poetry was independent of tragedy, tragedy was to SOME extent

1. Aristotle's Criticism of Plato 177 note 100.
2. Aristotle's Metaphysics I.158 ad 987b32.
3. Classical Quarterly XVII.115.
4. Plato's Theory of Ideas 161 with note 5.
5. Aristotle on the Art of Poetry. A Revised Text with Critical Introduction, Translation and Commentary. Ingram Bywater, Oxford Clarendon Press, 1909, page 145 ad 1449b9. 6. Op. cit.

influenced by epic poetry, if no more than in its choice of characters and subjects, so that the agreement asserted in subjects was not chance resemblance but the result of direct influence. But of course this has nothing to do with the meaning of the word ἀκολουθοῦσα, but with a question of fact. To put it differently Aristotle says no more in A.vi.1 than that Platonism in his opinion resembled Pythagoreanism in certain respects, but it is as much a begging of the question to say that this resemblance was coincidental as to say it was the result of conscious borrowing. I feel that the commentators cited above have confused two separate questions, the meaning of the word in itself, and the relationship to which it referred. The word means 'resembled' and gives no hint as to the nature of the resemblance - deliberate or coincidental. To determine which it is, it is necessary to go further afield.

ii) The Relationship Aristotle had in Mind. There is no sure indication in A.vi which reveals the nature of the relationship Aristotle had in mind when he stated that Platonism resembled Pythagoreanism. The resemblances which he notices may have been due to pure fancy on his part, they may have been due to parallel but independent development on the part of the two philosophies concerned, or there may have been various degrees of conscious adaptation by Plato of his philosophy along the lines of Pythagoreanism; there is no hint at all. For the alleged resemblance between Participation and Imitation, which we have argued[1] arose from Aristotle's arbitrary grouping of the two philosophies together in this respect in order to point to an anticipation of his own formal cause, does not touch the heart of the matter, which is the construction of Idea-Numbers from the elements, One and dyad, and of things from these Numbers and this dyad. As Aristotle has distinguished Plato's Early Theory of Ideas as fundamentally different from Pythagoreanism - for this 'introduction of Ideas' was his main peculiarity[2] and his continued separation of Ideas in his Later Theory was the reason for the secondary differences from the Italian philosophy[3] - and as the points of resemblance concern his Later Theory of Idea-Numbers only,[4] the problem comes to this: when Plato modified the nature of his Ideas by deriving them from elements, whereby they became Idea-Numbers, was he influenced, in Aristotle's opinion (for in this Part I we are concerned only with Aristotle's conceptions), by the Pythagorean tenet that the elements of Numbers were the elements of all things,[5] or was the resemblance between the two philosophies in this respect quite fortuitous?

a) The Change in Platonism. Now it is not difficult to show that Aristotle knew of a change in Platonism and knew further that this change concerned a connection of the Ideal Theory with the nature ø

1. Pages 98ff above. 2. Pages 69 & 122. 3. Pages 101 & 122.
4. Pages 83 & 122. 5. Pages 41-43.

of Numbers. On page 67 above we argued that 1078b9-12 bore testimony that Aristotle distinguished between a form of the Ideal Theory as originally held by Plato and a form which he held subsequently, when it was connected with the nature of Numbers. On page 91 we argued that by this connection of the Ideal Theory with the nature of Numbers, Aristotle meant the derivation of Ideas from the elements of Numbers, the One and the Great and Small, which latter was an analogue of the Pythagorean Infinite.

Now it is one thing to say that Plato agreed with the Pythagoreans in making the One and an analogue of the Infinite the elements of all things, but that he separated the One from things and put an Infinite in sensibles as well as, and separate from, the Infinite in Idea-Numbers, and quite another thing to say that Plato adopted the Pythagorean One and Infinite as the elements of all things, but separated them from things because he, unlike them, held separate Ideas. Aristotle states only the former and may or may not have believed the latter. If he did believe the latter, one might hope for some hint of it in the only place where Aristotle gives an historical account of the change in Platonism, of the reasons which motivated Plato when he modified the nature of the Ideas. This passage is 1089a1-7, to which we next turn.

b) The Reason forthe Change in Platonism.

1089a1-7: "There are many causes which led THEM off into these explanations, and especially the fact that they framed the difficulty in an obsolete form. For they thought that all things that are would be one (viz. Being itself) if one did not join issue with and refute the saying of Parmenides, 'For never will this be proved, that things that are not ARE.' They thought it necessary to prove that that which is not IS; for only thus - of that which is and something else - could the things that are be composed if they are many."

As this passage stands in our text it would seem to refer to the immediately preceding paragraph, 1088b28-35, and the word 'THEM' would then most naturally take up the parties there mentioned. Now the relevant part of this paragraph, lines 28-30, reads:"There are SOME who describe the element which acts with the One as an indefinite dyad, and object to the Unequal, reasonably enough, because of the ensuing difficulties." The editors identify this 'some' probably with Xenocrates, and correctly so,[1] which implies that the 'them' in 1089a1-7 refers to Xenocrates. But this paragraph is out of place for two reasons: firstly, there is no mention of the ensuing difficulties or even of the Unequal in the first part of N.ii, to which the paragraph belongs; secondly, the reason adduced in 1089a1-7 does not enlarge on the difficulties ensuing on the use of the Unequal, but on the necessity of proving that Not-Being IS. But if we move the paragraph about the Unequal into

1. See page 113 above.

the previous chapter, where the difficulties ensuing on the use of the Unequal are discussed, we place the paragraph in a context into which it fits, and thereby connect the reference in 1089a1-7 with what precedes the paragraph removed, a discussion of the elements, which is in fact the subject of 1089a1-7. We shall make this clear by summarising the context of N.i-ii.

Book N begins that all philosophers make the first principles contraries,[1] but all things which are generated from their contraries involve an underlying substrate.[2] But these thinkers, instead of positing an underlying substrate, make one of the contraries matter.[3] But in any case they do not describe rightly even those principles which they call elements,[4] for some oppose some sort of dyad to the One, and others oppose to the One something that is not its true contrary.[5] In fact, the One is a measure and not a substance.[6] Those who treat the Unequal as one thing, and the dyad as an indefinite compound of Great and Small, say what is very far from being probable or even possible.[7] Four reasons are given for this,[8] and here should come 1088b28-35:"There are some who describe the element which acts with the One as an indefinite dyad and object to the Unequal....because of the ensuing difficulties." This closes the case against the incorrect description of the elements, and N.ii opens by stating the case against the use of elements at all: we must inquire generally whether eternal things can consist of elements.[9] Aristotle objects that if things have elements, then they are as capable of not existing as of existing, so that no matter how long they have endured, they cannot be said to be eternal.[10] Then comes (that is, if 1088b28-35 be moved as suggested) 1089a1-7:"For they thought that all things would be one (viz. Being itself), if one did not....refute the saying of Parmenides,.....for only thus - of that which is and something else - could the things that are be composed, if they are many." The 'for' does not explain why things composed of elements cannot be said to be eternal, but explains why these thinkers made things, apparently eternal things (i.e. Ideas)[11], consist of elements - in order to account for their multiplicity, to avoid all things being one.

If we move 1088b28-35, then, as suggested, we get good sense both for that paragraph and for 1089a1-7, as shown above. The 'THEM', then, naturally refers to the philosophers who saw fit to derive the eternal substances, which are their principles, from elements. Who, now, are these philosophers?

Proof that 1089a1-7 Refers to Plato. 1087a30 might lead one to suppose that the philosophers in question are "all philosophers", but this cannot be so, for our reference makes it clear that the

1. 1087a30. 2. 1087a36-37. 3. 1087b5.
4. 1087b13-14. 5. 1087b14-33. 6. 1087b34.
7. 1088a15-16. 8. Respectively 1088a17ff, 21ff, b1ff, b5ff.
9. 1088b14-15. 10. 1088b15-28. 11. But see p.128 below.

parties in question are subsequent to Parmenides, since it was the need to refute his saying that led them to make the first principles contraries. It is possible that the 'them' includes all philosophers subsequent to Parmenides, but there are two indications that Plato is especially meant. Firstly, there is the broad lay-out of the book. 1086a21-31 sets the scope of book N; it will consider the views of those who assert that there are other substances besides the sensible; of these some say that the Ideas and the Numbers are such substances, and these are set down for immediate investigation, while those who posit Numbers only and these mathematical (i.e. Speusippus) are left over for later. The inquiry turns immediately to the Theory of Ideas as universal substances, and then Aristotle, in 1086b16-20, puts a dilemma: such universal substances, if not separate, cannot be substances; if separate, how are we to conceive their elements? It is this inquiry into the elements, obviously of Ideas (the Later Platonic Idea-Numbers in fact) that forms the immediate context of the passage under consideration, and when this discussion closes, we go on to the possibility of positing Numbers as principles, N.ii.1090a2ff, in which is included Speusippus. This points to Plato as especially meant by 1089a1-7.

Secondly, when Aristotle comes to discuss that Not-Being, which was said to have been thought necessary for the existence of the Many, after asking, "What sort of....Not-Being...pluralises the things that are?"[1] he answers thus:[2] "This thinker means by the Not-Being, the union of which with Being pluralises the things that are, the FALSE,[3]" and the editors annotate that this refers to Plato's dialogue, Sophist 237A,240. Obviously, Plato is here referred to, and as he chronologically preceded all other Academicians and Platonists, it is to him and to him alone that the reference is made re the necessity of countering Parmenides' saying. Further, a few lines below,[4] Aristotle names, in this connection, Plato's characteristic term, the Unequal, thus:"In seeking the opposite of Being and the One, from which with Being and the One the things that are proceed, they posited the relative term, i.e.the Unequal, which is neither the contrary nor the contradictory of these."

Therefore, 1089a1-7 refers to Plato and gives Aristotle's version why Plato derived all things from elements. We turn now to the examination of this passage.

The Examination of this Passage. Having established that 1089a 1-7 refers to Plato, it remains to explain what is there meant by the passage, that is, the considerations which led Plato to make the change in question, and the manner in which he effected it.

1. 1089a19. 2. 1089a20-21. 3. This unusual description of one of Plato's elements may be explained in that here Aristotle is referring to the dialogues, the Sophist in fact, whereas he usually cites the Unwritten Teachings, see part II, ch. 2, sec.iii.
4. 1089b4-6.

Now, if we consider the context of 1089a1-7, the problem arises as to what 'these explanations' refers to. There is nothing in N.ii, in which this passage occurs, which could be taken up by these words, but a somewhat lengthy account is given in N.i of various sets of contraries used by the Platonists and objections are made against all of them. It seems to me that 'these explanations' refers back to these contraries. It is possible that, just as 1088b28-35 is out of place, so also 1089a1-7 is out of place, but to move this passage would require a complete remodelling of a good portion of book N; it is more satisfactory, then, to take 'these explanations' as referring back to N.i, despite the fact that it occurs in N.ii. I shall attempt to prove this firstly by reviewing the context again with this interpretation of the back-reference in mind, and secondly by reviewing the rest of N.ii, after this passage, to show that the criticism of 1089a1-7 which follows confirms that interpretation. Having established this, we can then deal with the questions, what were the considerations which led Plato to make the change in question, and what was the manner in which he effected this change.

N.i criticises the standpoint of Aristotle's predecessors from his own theory that the things of this world require, for their generation, three principles: the form, the absence of the form or Privation, and a tertium quid or underlying substrate. The former two are contraries, and as any one quality in this world comes into being as the opposite of its contrary, an underlying substrate is required from which and into which the contraries pass. This is the Matter. Now he criticises his predecessors for having made the error of opposing Matter to Form, thus neglecting Privation. They used only two principles, Matter and Form in the case of the Platonists, and mistakenly conceived these principles to be contraries. It is to this that 1089a1-7 refers. If there is any one sentence in N.i to which it particularly refers it is 1087b4-6:"But these thinkers make one of the contraries Matter...." This is what is meant by 'these explanations'. In other words, when Aristotle says in 1089a1-7,"There are many causes which led them off into these explanations,and especially the fact that they framed the difficulty in an obsolete form," he means that apart from other unnamed reasons, these thinkers (and especially Plato, as we have shown above) made their principles contraries because they were faced by the dilemma which follows, and which Aristotle considered was outmoded. This means, further, that the things which were generated from these principles, whatever else they may have been, were sensible things, so far as the argument of 1089a1-7is concerned, since it is about the sensible world that Aristotle had been talking in N.i as far as we have summarised the argument. Let us bear this

in mind, for we shall return to it later: IN 1089a1-7 ARISTOTLE MEANS THAT PLATO MADE HIS PRINCIPLES CONTRARIES BECAUSE FACED WITH A DILEMMA, AND THAT THESE WERE THE PRINCIPLES OF THE SENSIBLE WORLD PARTICULARLY.

To return to the context. Aristotle next digresses in elaboration of his objection that they mistakenly conceived their principles as contraries, for, he says, the Unequal is not the contrary of the One but of the Equal; Plurality is not the contrary of the One but of the Few. In general, whatever the principle other than the One is termed it is incorrect, since the One has no contrary at all. Having by virtue of this digression touched upon the elements, not of the sensible world so much as of Ideas and Numbers, Aristotle opens N.ii by asking whether such eternal entities can have elements at all. They cannot since whatever is compounded of elements cannot be eternal. This is where, if we remove 1088b28-35, the passage here discussed occurs, but it seems incorrect to interpret it as referring to the preceding argument. Apart from the fact that too little has there been said to warrant the use of the expression 'these explanations', the gist of 1089a1-7 does not fit the argument of N.ii. For to do so, 'these explanations' must mean the compounding of eternal entities from elements, and the resultant entities would then be Ideas or Numbers. We shall now show that this cannot be the meaning of 1089a1-7.

In this passage Aristotle alleges that the dilemma which confronted Plato was how to avoid all things being one, i.e.Being, unless he refuted Parmenides' saying that whatever was other than Being could not exist. Now if such things were Ideas or Numbers, then they would be one either because their formal element was One, or because, as the only really real entities, they were Being,and Being is One - according to the obsolete form in which Plato conceived Being, viz. as a unity, following Parmenides. But Aristotle explicitly states that all things were one qua Being -'viz.Being itself'. Hence the former possibility does not tally with Aristotles words. But if the Ideas are one because they are Being, how are we to explain the necessity of refuting Parmenides' saying that what is other than Being (namely, sensibles) cannot exist? What meaning can there be in an argument which states that in order to avoid making the Ideas one, Parmenides must be refuted and some existence allowed for sensibles, and how could the Ideas be derived from Being (i.e. the Ideas themselves) and Not-Being (i.e.sensibles)? Therefore, he does not here refer to the derivation of Ideas, nor is he talking about the elements of eternal entities at all; he is referring to the principles of the sensible world and to the derivation of sensibles, namely, that sensibles are one because their formal element is Being (the Ideas) and according to Parmenides Being is One. Parmenides must be refuted by proving the existence

of a Not-Being from which, with Being (Ideas), sensibles could be derived, as will be shown on page 132 below. To demonstrate that Aristotle really refers to sensibles here, let us examine the criticisms which follow 1089a1-7.

Aristotle's criticisms start out from the application of his own theory of categories to Plato's solution. 1089a10-11 says: "what sort of one... are all the things that are, if Not-Being is to be supposed not to be? Is it the substances that are one, or the affections and similarly the other categories as well, or all together?" That is, not only would such things as men, horses, etc, which belong to the category of Substance be one, but also colours and flavours which belong to the category of Quality. This argument is continued further down, 1089a32-b1: "The question, evidently, is how Being, in the sense of the 'Substances', is many; for the things that are generated are numbers and lines and bodies (σώματα). Now it is strange to inquire how Being in the sense of the 'what' is many, and not how either Qualities or Quantities are many. For surely the indefinite dyad or 'the Great and the Small' is not a reason why there should be two kinds of white or many colours or flavours or shapes." The examples here seem particularly apposite in respect of sensible bodies, but hardly suit Ideas, and the word σώματα clinches the matter. Aristotle is objecting to the one-ness not of Ideas but of sensible things, saying that logic requires an explanation not only of the plurality of such things as belong to the category of Substance but of those also which belong to the category of Quality or Quantity.

He next turns to the nature of the elements, applying a similar argument. 1089a15-20: "Of what sort of Not-Being and Being do the things that are consist? For Not-Being....has many senses, since Being has.... What sort of Being and Not-Being, then, by their union pluralise the things that are? This thinker means by the Not-Being, the union of which with Being pluralises the things that are, the False..." Previously Aristotle had asked whether the unity of things was confined to one category; here he asks whether the element Not-Being, which allows things to be many, is confined to only one category. The only explicit reference he can find, apparently, in Plato is in the Sophist, where it is called the False, which he does not seem able to fit into his scheme of categories. The term, 'pluralises the things that are', suits the multiplicity of things,[1] and the False seems to indicate the same conception for Aristotle, although the Sophist deals chiefly with Ideas. So Liebrucks[2] takes it: "In the Sophist there is no longer a methexis between two worlds, but the Ideas, as understood in

1. See page 109 above. 2. Platons Entwicklung zur Dialektik 155-6

human terms, are in our midst. The ground of Not-Being is the relativity of all determined reality. So Parmenides is refuted." Also Robin[1] :"What in the Timaeus is called the Receptacle is in the Oral Teaching called Space in such a way that Space is in the Ideas although the Ideas are not in Space. This seemed to him indispensible to account for the plurality, and is called the False." So Cherniss,[2] although Aristotle's own words confute his interpretation of Not-Being in our passage as Absolute Not-Being: "That Aristotle had in mind the Not-Being of the Sophist is shown by 1088b35-9a6....This is the origin of the error. The Platonists posit Not-Being to account for multiplicity; the Idea was a unity, therefore, any substrate for plural material existence had to be Absolute Not-Being." This argument, then, refers to Not-Being as the material substrate and to the generation of sensible things.

The argument is continued somewhat lower down by attacking the actual examples of Not-Being used by Plato,as belonging to the category of the Relative, to which Aristotle objects that no account is given of the plurality of these elements. 1089b8-15:"They should have asked this question also, how relative terms are many and not one. But as it is, they inquire how there are many units besides the first 1, but do not go on to inquire how there are many unequals besides the Unequal. Yet they use them and speak of Great and Small, Many and Few (from which proceed Numbers), Long and Short (from which proceeds the Line), Broad and Narrow (from which proceeds the Plane), Deep and Shallow (from which proceed Solids); and they speak of yet more kinds of relative term. What is the reason, then, why there is a plurality of these?" While the words which appear in brackets are undoubtedly Ideas, it is not these about which Aristotle is speaking, but the elements in each case, which are themselves assumed to be many, while they are posited in order to account for the multiplicity of sensibles. This is very clear from the opening words of the passage. They inquire how there are many units, i.e. how sensibles are a plurality, besides the first 1, i.e. while the corresponding Idea is single, but do not go on to inquire how their material element is multiple, how there are other dyads, e.g. the Hot and Cold, the Wet and Dry, besides the Unequal, the Great and Small of Numbers.

Hence, so far Aristotle is dealing only with the principle of the multiplicity of sensibles and the derivation of sensibles.Only at the end of the chapter does he refer explicitly to Idea-Numbers. So 1090a2-4:"One might fix one's attention also on the question, regarding the Numbers, what justifies the belief that they exist." But as this does not deal with the question of elements at all, it would seem to be a transition to N.iii, where Aristotle passes to the consideration of Numbers as principles, and not directly

1. Plato 144. 2. Aristotle's Criticism of Plato 92 & 94.

connected with the inquiry centring around 1089a1-7 at all.

Returning now to the examination of 1089a1-7 in the light of the above discussion, and bearing in mind the conclusions arrived at on page 129 above, viz. that Aristotle means that Plato made his principles contraries because faced with a dilemma and that these were the principles of the sensible world, we must show what were the reasons that led Plato to modify his theory, by explaining this dilemma and what it entailed.

In 1089a1-7 Aristotle gives what he considered was the chief reason for Plato having made his principles contraries: namely, that he was faced with the dilemma that sensibles would be a bloc universe unless he refuted Parmenides' division of all things into Absolute Being and Absolute Not-Being. Parmenides allowed no degrees of reality: sensibles must be either Being itself or not exist at all. As sharing in the Ideas, which as the really real were Being, sensibles would be Being; as other than the Ideas, sensibles would be other than Being, and the other than Being according to Parmenides was Not-Being, which had no existence at all. Not only had Plato to refute Parmenides, but he had to find a metaphysical explanation for a position for sensibles half-way between Being and Not-Being, so to speak, which could only be attained by deriving them from Being and a Not-Being which had been shown to have some sort of existence. It will be convenient to refer to the latter in modern terms as Relative Not-Being. This Relative Not-Being, then, would distinguish sensibles from Being and at the same time allow them to have that Relative Not-Being, instead of the Absolute Not-Being asserted by Parmenides, which would be established by refuting the Eleatic bifurcation off all things into Absolute Being and Absolute Not-Being. This passage, then, could be paraphrased as follows: Plato made his elements contraries for several reasons, the chief one being the need to avoid Parmenides' dilemma that sensibles would be either Being itself or non-existent. He had to refute this dilemma by showing that Not-Being did have some sort of existence, and then had to derive sensibles from Being and this Relative Not-Being in order to account for their half-way position between Being and non-existence. That is about as far as 1089a1-7, taken by itself, will take us, and clearly thus far there is nothing about Pythagorean influence. To find this a measure of reconstruction is needed.

c) The Connection with Pythagoreanism. Plato, we have said, made his principles contraries to account for the intermediate position of sensibles between Being (Ideas) and nothingness. This has been interpreted as the attempt to avoid making all things one, and to this Aristotle probably refers at the end of the passage when he says, "For only thus...could the things that are be composed IF THEY ARE MANY". And yet the logic of the argument leads us to expect rather "If they are to exist." Could it be that Aristotle has some-

thing more in mind than the mere avoidance of making sensibles one as Being, is thinking of an active principle making sensibles many? It would seem to be the case from two further references which give this composition of sensibles as the reason for their multiplicity: "What sort of Being and Not-Being, then, by their union PLURALISE the things that are?"[1] "This thinker means by the Not-Being, the union of which with Being PLURALISES the things that are, the False."[2] And that Aristotle does not mean merely the negative of one-ness but something more appears from, "The question evidently is, how Being, in the sense of 'the substances', is MANY... It is strange to inquire how Being in the sense of the 'what' is MANY, and not how either qualities or quantities are many. For surely the indefinite dyad or 'the Great and the Small' is not A REASON WHY THERE SHOULD BE TWO KINDS OF WHITE OR MANY COLOURS."[3] It seems to me that we have here to do with that principle of multiplicity to which we referred on page 109 above:"They make MANY things from the matter."[4] This is doubtless one of the elaborations of the bare derivation of sensibles from two elements in order to account for their existence at all: it is an elaboration to account for their multiplicity and may well be referred to in the other unnamed causes which led Plato to make his principles contraries in 1089a1-7.

Another such elaboration was the derivation of Ideas from two elements, the One and the Great and Small. Aristotle must have had this also in mind when he wrote 1089a1-7 and the sentences following it, since, whereas he had referred to the principle of sensibles as the contrary of Being, in one of the passages quoted just above[3] it is suddenly named the Great and Small, and the continuation of that passage brings Plato's derivation of sensibles into connection with his derivation of Idea-Numbers:"For surely....the Great and the Small is not a reason why there should be two kinds of white...For then THESE ALSO WOULD BE NUMBERS."[5] This is as much as to say that the Great and Small, an analogue of Not-Being, was used as the reason for making Ideas Numbers, and was doubtless a second of the unnamed causes referred to in, "There are many causes which led them off into these explanations."[6]

But these two points, the principle of multiplicity in sensibles and the principle of Numbers making Ideas Numbers, brings us into that phase of Plato's thought which was dealt with in that part of A.vi which alleged certain resemblances between Platonism and Pythagoreanism - the derivation of Ideas from the elements of Number, the One and an analogue of the Infinite, and the material element as the principle of the multiplicity of sensibles. In both the latter part of A.vi and in N.ii, then, we are dealing with the same phase of Platonism, the Later derivation of Ideas and things from elements,

1. 1089a19. 2. 1089a20-21. 3. 1089a32-b1.
4. 988a2-3. 5. 1089a35-b2. 6. 1089a1.

but from different aspects. Of the several reasons which led Plato to make this change, 1089a1-7 deals with only one, but the chief one, the need to refute Parmenides' saying and by deriving sensibles from Ideas as Being and another element analogous to Relative Not-Being to account for their intermediate position between Being and nothingness; the rest of the chapter, N.ii, assumes a knowledge of Plato's further use of this element to account for the multiplicity of sensibles and the use of the elements, the One and a dyad, to make the Ideas Numbers. The latter two were inspired by the other causes referred to but not explained in 1089a1-7, and as they had been dealt with in A.vi, where they were said to have been resemblances to Pythagoreanism or resemblances with certain distinguishing factors the conclusion seems to be implicit that such resemblance or near resemblance was another of the causes alluded to in 1089a1-7. In other words, the resemblance between Platonism and Pythagoreanism in deriving Idea-Numbers from the elements, the One and an analogue of the Infinite, with the distinction that in sensibles this Infinite was a principle of multiplicity, was not mere independent agreement, but a conscious borrowing, since it is to this that Aristotle refers in 1089a1-7 as some of the "many causes" which led them off into these explanations." Further than this we cannot go unless we make use of other evidence - the dialogues of Plato - and with these we shall deal in the next part, where the historical correctness of Aristotle's conceptions of Pythagoreanism, Platonism so far as it is recounted in A.vi, and the relationship between them, will be checked from an examination of the evidence independent of Aristotle.

Part II. The Historical Correctness of Aristotle's Conceptions.

Chapter 1. Pythagoreanism.

Introductory.

The Question of Evidence. The aim of this part of my work is to check the historical correctness of Aristotle's conceptions concerning Pythagoreanism in this chapter, and of Platonism and its relation to Pythagoreanism in the other chapters, by using as far as possible evidence independent of Aristotle. But for the Early Pythagoreanism we are at a disadvantage, for there were no writings left by Pythagoras or his immediate followers, and the oral traditions of the school were kept secret until the time of Philolaus,[1] about the second half of the V. century B.C. There is some evidence left us by contemporaries of the Early Pythagoreans, such as Xenophanes, Heraclitus, Empedocles and Pherecydes,[2] which does not tell us much more than that Pythagoras could remember his past lives, cultivated ἱστορίη , and believed in Transmigration. But we are not concerned with the religious side of Pythagoreanism, as has been explained in the Introduction.[3] Apart from this we are dependent upon Aristotle's evidence and that of post-Aristotelian writers, who cannot here be used except where corroborated by considerations to be dealt with below, since the assumption is that their evidence is drawn almost exclusively from Aristotle's works,[4] whereas our aim is to adduce evidence independent of Aristotle. While these post-Aristotelian writers may have had access to works of Aristotle no longer extant, if we are to judge by the fragments which remain of Aristotle's Life of Pythagoras, such as fragment 191 (Rose), we would not be much impressed by such access, since he has included in that Life such marvels as his having a thigh of gold, his appearing on the same day at both Croton and Metapontum, his killing a snake by biting it, etc. There is, thus, an initial problem of evidence: how can Aristotle be corroborated in respect of Early Pythagoreanism when his is almost the only extant evidence apart from that of his successors, and they were doubtless almost exclusively dependent on his writings for their knowledge?

The Method to be Followed. We owe it to Cornford[6] that we have

1. See Diels, Die Fragmente der Vorsokratiker, Vierte Auflage, Vol.I page 27 ad init. s. 4.Pythagoras; and Miss Freeman, the Pre-Socratic Philosophers, A Companion to Diels 73-75.
2. Respectively 11B7, 12B40 & 129, 21B129, 25B4 in Diels, op. cit.
3. Page 8 above. 4. Cp. Frank, Plato und die sogenannten Pythagoreer 72-76, that there was a literary tradition according to which writers ascribed their discoveries to Pythagoras or some other famous name, and later writers took this literally.
5. These miracles, however, seem to be taken seriously as evidences of Shamanism by Dodds, The Greeks and the Irrational, esp.pp.143-6.
6. Classical Quarterly XVI.137, probably suggested by Burnet, Greek Philosophy 44. Cameron, The Pythagorean Background of the Theory of Recollection 64, thinks this criticism caused but little change, but he deals with the religious and not with the scientific side of Pythagoreanism.

at our disposal a method of deducing the leading tenets of Early and of Later Pythagoreanism from the Eleatic criticism of Pythagoreanism, if, as will be shown, that criticism was in fact directed against Pythagoreanism, by following up two lines of argument: what must it have been before the date of that criticism to have been so criticised, and, if it underwent any changes as the result of that criticism, along what lines would the reconstruction have proceeded in order to obviate that criticism. Hence, the chief features of this chapter will be to show that this criticism was directed against Pythagoreanism, to examine the criticism itself, and to deduce the leading tenets of the system so criticised, and to show along what lines that criticism could have been obviated. By these means we shall arrive at a basis on which to build up a more complete picture of pre-Eleatic and post-Eleatic Pythagoreanism by taking what evidence there is and assigning it to the former reconstruction if it substantially agrees with the main lines of this, and to the latter if it agrees with what post-Eleatic Pythagoreanism must have been in order to obviate that criticism. In this selecting the available evidence there is, however, a further criterion available to us.

The early date of the original Pythagoreanism leads us to expect a certain naïvety in its outlook on the Universe, for not only was Pythagoras' era the second half of the VI. century B.C., but the first Eleatic criticism, that of Parmenides, can be dated about the turn of that century. Thus, we expect to find evidence of a naïve conception of the Universe in references which refer to the early school. For the later school we have certain evidence that is already assigned to Pythagorean philosophers who can be dated within reasonable limits of certainty, and who were all subsequent to the later Eleatics. Hence, by using the double criterion of a primitive outlook and the sort of tenets which the Eleatics seem to have been attacking we can hope to arrive at a reasonable reconstruction of Early Pythagoreanism. Similarly, by using the double criterion of evidence ascribed to later Pythagoreans by name and the sort of beliefs which must have been held if the Eleatic criticism was to be obviated, we can reconstruct post-Eleatic Pythagoreanism.

There were undoubtedly Pythagorean schools of a yet later date than these two schools assumed by the examination of Eleatic criticism, such as various post-Platonic schools,[1] but these do not concern us, since we are dealing with a Pythagoreanism which could have influenced Plato and so must have been prior to him in date.

We turn now to the examination of the Eleatic criticism referred to, and begin with Zeno, although he was Parmenides' successor, since what he was criticising is clearer than what Parmenides was criticising.

1. See page 65 note 1, above.

Section i. Pre-Zenonic Pythagoreanism.

a) Zeno's Criticism. Zeno's Method. Zeno's method of Dialectic[1] has been loosely described by Raven[2] as the drawing out of contradictions from the premisses of his opponents, and in similar terms by Taylor,[3] that he employs the premisses of his opponents to reach antinomies. I say 'loosely', because this description does not give a very clear picture of his method. One must distinguish two stages in his procedure. The first is the statement of the postulate which he is attacking together with the two contradictory conclusions to be deduced therefrom. For example, one of his arguments is that 'If the Many exist, they are both large and small.' The second stage is the deduction of the Large from one set of premisses and of the Small from another set of premisses, for it cannot be maintained that it is possible to deduce the Large and the Small equally from one and the same postulate, namely, 'If the Many exist.' Now some critics appear to have overlooked this distinction by supposing that both the Large and the Small are directly deduced from the postulate, 'If the Many are.' At least, Burnet[4] says:"Zeno took ONE of his adversaries' postulates and deduced from it two contradictory conclusions", and so apparently Miss Freeman[5]:"Zeno's method is to take ONE of his opponent's postulates and work out from it a pair of contradictory conclusions." In these quotations the 'ONE' seems quite definitely to point to what I have called the first stage. Miss Freeman and Burnet seem to take 'If the Many are' as ONE of the opponent's postulates, and 'They are Large','They are Small' as two contradictory conclusions deduced directly from that postulate. But this is not so. In order to establish the two separate conclusions, the Large and the Small, a different set of intermediate premisses is required in each case. This is what I have called stage two, and this is what Lee[6] refers to when he says that Zeno starts from premisses admitted by his opponents, and he shows that Dialectics was general among the Greeks and was characterised by taking its premisses as ἔνδοξα . Even clearer is Cornford,[7] that Zeno's opponents maintained an original confusion of geometrical solid with physical body, and so he takes as one half of his argument the premiss that magnitude is continuous, and as the other half that it is discrete.(This of course refers to another antinomy than that cited above.) Now the important feature here is that both of the premisses from which conclusions are drawn to contradict the original postulate are accepted by the opponents, otherwise the argument would not achieve its aim. I shall make this clear by comparing it with the dilemma.

1. Aristotle, fragment 65 (Rose):"Zeno was the founder of Dialectic."
2. Pythagoreans and Eleatics 81. 3. A Commentary on Plato's Timaeus 180. 4. Early Greek Philosophy 361.
5. Op. cit. 154. 6. Zeno of Elea 7 & 114-7.
7. Plato and Parmenides 58-59.

The dilemma runs: If A, then either B or not-B. Both B and not-B are shown to lead to impossibilities or absurdities, so that by the denial of the consequent the antecedent is denied and is accordingly abandoned. But Zeno's method is: If A, then A is both B and not-B, which is impossible; this denial of the consequent leads to the denial and consequent refutation of the antecedent. The difference between these forms is that in the dilemma, since two independent alternatives are followed up separately, there is no reason why different standards should not be used in each case, but in Zeno's dialectic, since A must be shown to be both B and not-B together, it must be both on the same grounds, otherwise the argument is fallacious. Consequently, then, when Zeno alleges that 'If the Many exist, they are both large and small', and deduces their largeness from one set of premisses, their smallness from another, the school attacked is not touched unless it accepts both sets of premisses, or what comes to the same thing, unless this school made use of both in its philosophy. So Aristotle dismisses Zeno's dialectic as childish[1] - just because he could see no point in it as he did not accept both sets of premisses. But the antinomies were not directed against Aristotle, but, as will be shown, against the Pythagoreans, and the implication is that they must have accepted both sets of premisses - that from which A is shown to be B, and that from which A is shown to be not-B, since otherwise Zeno was indeed being childish. Therefore, it is vital for any interpretation of Zeno's dialectic to insist that both sets of premisses in any one of his paradoxes would have been accepted by his opponents.

The Party Criticised. Now who were these opponenets? Against whom were Zeno's paradoxes directed? According to his extant fragments the only indication is that they were directed against "a man who says that there is a plurality."[2] Dialecticians do not, as a rule, address technical and complicated arguments against the views of the 'man in the street', so that the party concerned was surely some philosophical school in existence at the time. According to Raven[3] the date of the meeting between Socrates and Parmenides alleged by Plato in his dialogue, the Parmenides, was 450 B.C., since Socrates was aged about 20, and we know he was born in 469.[4] Since Zeno is there represented as 40 years old and is said to have written his book in his youth, his dialectical arguments are taken to date from about 470 to 465.[5] Ross[6] would seem to agree with these conclusions, which I accept, although Cameron[7] takes Zeno's attack as not antedating 449, the probable date of the dialogue, and others,

1. Metaphysics 1001b14-15, φορτικῶς . 2. Diels 19B2 init., as translated by Lee, op. cit. fgt.9 page 19.
3. Pythagoreans and Eleatics 67. 4. Ritter and Preller, Historia Philosophiae Graecae p.194, § 239; Diogenes Laertius II.44.
5. Cp. Diels 19A1 & 2, which give his floruit as about 465 B.C.
6. Plato's Theory of Ideas 7. 7. The Pythagorean Background of the Theory of Recollection 36 note 30.

Burnet[1] and Cherniss[2], take a wider view of 'youth' by bringing down the date to before 460 B.C. A few years this way or that, however, signify little. For at that time there were only two schools of philosophy (besides the Eleatic) of any note - the Ionian and the Pythagorean. The Ionian was practically confined to Asian Minor (Miletus and Ephesus), but Pythagoreanism flourished in Italy[3] and Zeno was a native of Elea in Italy.[4] Hence, the probability is that Zeno was opposing the Pythagoreans for holding the existence of the Many, since the Ionians, for Aristotle[5] at any rate, were the type of material monism.

But a much more convincing argument is that of Lee,[6] that in Suidas' account of the titles of Zeno's works, the title πρὸς τοὺς φιλοσόφους would mean, according to V. century usage, 'Against the Pythagoreans,' and there is some reason to suppose that the Pythagoreans were the particular object of his attack. In fact, it is the general consensus of opinion among modern scholars[7] that the opponents attacked by Zeno in his antinomies were the Pythagoreans.

An Examination of Zeno's Paradoxes. H.D.P.Lee, who in his 'Zeno of Elea' has made a more exhaustive collection of references to Zeno than has Hermann Diels, has divided them into arguments against Plurality, Motion, Place and the Falling Millet Seed. As we lack sufficient information about the Pythagorean conceptions of time, place and motion, and in any case an analysis of the arguments against Plurality will suffice for our purpose, I shall confine my investigation to these, which will have the added advantage of using evidence, in certain references, drawn directly from Zeno's writings - if we are to believe Simplicius, who quotes them. In this examination I shall use Lee's numbering and translation, but I go beyond his conclusions, since he has not made it clear what was the relation of the 12 passages constituting the arguments against Plurality either to one another (except in one or two more obvious cases) or to the several arguments which might be supposed to have been actually used by Zeno.

Now there are in these arguments against Plurality, as we have just said, 12 passages, but these are not all of equal value. From what has been said above concerning the form of Zeno's paradoxes,

1. Early Greek Philosophy 358-9. 2. Aristotle's Criticism of Pre-Socratic Philosophy 388. 3. Diels 4,8 :"Pythagoras at the age of 40 moved from Samos to Italy"; Diels 4,13 :"When Pythagoras had lived at Croton for 20 years he moved to Metapontium."
4. Diels 19A1 & 2. 5. Metaphysics 987a4-6:"The earliest philosophers.....regard the first principle as corporeal...and suppose that there is one corporeal principle."
6. Zeno of Elea 8-9. 7. So Cornford,Classical Quarterly XVI. 137, XVII.7, Plato and Parmenides 58; Burnet, Early Greek Philosophy 361, Greek Philosophy 82-3; Cameron, op. cit. 36 note 30; Cherniss, op. cit. 398; Milhaud, Les Philosophes Géomètres de la Grèce 132; Raven, op. cit. 71-2; Robin, Platon 82 note 1; Ross, Aristotle's Metaphysics I.246; Taylor, Plato the Man and his Work 505; Miss Freeman, op. cit. 158.

only those fragments which reflect this form will represent what Zeno said in the form in which he said it, and other fragments not reflecting this form must be excerpts from longer arguments or versions of the paradoxes which owe more to their reporter than to Zeno himself. This general form is, If A, then A is both B and not-B, and only 6 of the 12 fragments are couched in this form, viz. 5,8,9,10,11 and 12. These 6 fragments represent only 5 fundamental arguments, for 9, as will be shown, equals 10. I shall set out these five arguments in brief and then confirm what has been said about the general form of Zeno's paradoxes by considering the first one with this object in mind.

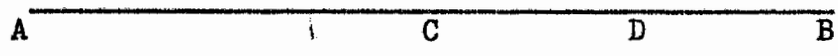
These five arguments run as follows:-

i) If there is a plurality, they must be both like and unlike (12);
ii) " " , they must be both finite and infinite(11);
iii) " " , they must be both one and many (8);
iv) " " , they must be both many and nothing (5);
v) " " ,they must be both large and small (9 &10).

(i) Like and Unlike. Fragment 12 reads as follows:"If things are a plurality, then they must be both like and unlike, but this is impossible. For it is not possible either for the unlike to be like or the like to be unlike." This is quoted from Plato's Parmenides, and seems to represent the actual words used by Zeno (doubtless in a short statement of the argument, as no premisses are adduced to show how the Many is like nor how unlike) in his first hypothesis of this first argument, as it is here called. Lee[1] shows that by 'like' and 'unlike', Zeno would have meant 'like and unlike in number'. It is clear that this reference does notgive a complete argument, but only a short statement, comparable to those just given for the five fundamental arguments above. Nevertheless this short statement is valuable because it shows quite clearly the form of his paradoxes. Zeno is attacking the basic assumption of pluralism, hence the hypothesis, 'If things are a ~~plurality~~ plurality', and this was doubtless the case in all five arguments set out above. Further, his method was not to ~~propose~~ pose a dilemma but to deduce a pair of contradictory conclusions for this hypothesis, which, as the end of the quotation shows, was intended to demolish the hypothesis because of the incompatibility of such conclusions one with the other. It is an application of the Principle of Contradiction:"The same thing cannot at one and the same time be and not-be or admit any other similar pair of opposites."[2] The primary hypothesis,"If things are a plurality,' is demolished because it can be shown to lead to plurality being at once like and unlike. But the quotation omits any indication of how plurality was shown to be like, how unlike. For an example of such secondary premisses we must look to the second example.

1. Op. cit. 32. 2. Metaphysics 1061b36-2a2.

ii) Finite and Infinite. Fragment 11 runs:"If things are a plurality, they must be just as many as they are and neither more nor less. But if they are as many as they are, they will be finite in number. If things are a plurality, they will be infinite in number. For there will always be others between any of them, and again between these yet others. And so if things are infinite in number." This Simplicius calls 'the arguments from Dichotomy'. It will be observed that these actual words of Zeno, so it is alleged, confirm what we have just said about the general form of his paradoxes: he assumes the existence of the Many and demolishes this by showing that it shares in contradictory predicates,but this fragment is especially interesting because it preserves the premisses used by Zeno for deducing that the Many is finite on the one hand, on the other is infinite in number - and we said above, both sets of premisses must have been either used by or acceptable to the Pythagoreans. Hence, when we wonder what can be meant by saying in the first set that 'they must be just as many as they are' and in the second by 'there will always be others between any of them', the solution must lie in some doctrine of Pythagoreanism, for it is absurd to suppose that Zeno refers to the observations of the 'man in the street', according to whom it is true, but childish, to say that any number of objects is as many as they are, and it is false that between any two random objects there are always others. Lee[1] has explained the latter as referring to the conception of the dichotomy of a line, which fits in with Simplicius' description above. That is assume any straight line, AB. It can be bisected at C, and CB can be



bisected at D, and so on. So between any two points of the line, say C and B, it is always possible to find a third, D, by further bisection, and so ad infinitum.[2] Thus, the premiss, from which is deduced the numerical infinity of the line (remember, the Many are infinite in NUMBER) as an example of plurality, assumes that the line is a continuum since infinitely divisible, and yet the line is spoken about as if made up of points, since 'there will always be others between any of them'. Now it is to these points of the line that the first set of premisses refers. They are theoretically capable of numeration and so 'just as many as they are'. Hence, in

1. Lee, op. cit. 30-1. 2. Taylor overlooks the fact that this is only one of two sets of premisses, the other of which was equally accepted by the Pythagoreans, when he says that this continued bisection ruined their treatment of geometry as an application of arithmetic, Plato the Man and his Work 505, and his saying that Zeno polemised their ignoring surds, Commentary on Plato's Timaeus 325, assumes that Zeno knew about surds. Cornford Plato and Parmenides 59, correctly interprets Zeno's argument as making the assumption that magnitude is continuous in one half of the argument, and in the other that it is discrete with indivisible units.

this paradox Zeno takes as an example of plurality the Line as a succession of points set out in a continuum -Extension - and first, by emphasising the existence of these points as capable of numeration, theoretically at least, since actually infinite in number, he deduces that, being as many as they are, they are finite in number, and then in the second premiss, by emphasising the continuum, he deduces that, being infinitely divisible, the Line is infinite in number. Therefore, besides having a fairly complete example of one of Zeno's paradoxes, we have here evidence of the Pythagorean conception of the Line - a succession of points in a continuum.

iii) One and Many. Fragment 8 is a rather long passage and one part of the argument is of doubtful authenticity.[1] Since it has been shown above that the Zenonic paradox has the characteristic form of contradictory predicates deduced from the original assumption, I shall shorten the passage by proceeding straight to the point where this procedure is apparent. "He proves the same conclusion also from a consideration of the continuous. For suppose the continuous is one; then, since the continuous is always divisible, it is always possible to divide the products of division into still further subdivisions, and if this is so the continuous will therefore be many. Thus the same thing will be one and many, which is impossible." The first part of the paradox, that the continuous is one, is taken to be self-evident, as Philoponus states earlier in the passage:"Those who introduce plurality, put their confidence in its self-evidence; for there exist horses and men and a variety of individual things.....This self-evidence Zeno attempted to overthrow sophistically..." In the second part of the paradox we have the same argument from dichotomy as used in ii) above. Hence, when Philoponus says the 'continuous' he means the Line in particular. Hence, fragment 8 here is based on the same conception of plurality, of the Line, as in fragment 11 above. This fragment, then, adds little to our knowledge: whereas fragment 11 showed that the Line was both finite and infinite in number by first showing that the points composing the line are as many as they are, secondly by dichotomising the line, fragment 8 shows that the line is both one and many by using for the first part the self-evident observation that it is one thing, and the Dichotomy for the second part.

iv) Many and Nothing. Fragment 5 runs: "...He raised the difficulty, it seems, because each particular sensible object is called many both categorically and by division, but the point he supposed to be nothing at all. For what does not increase a thing when added to it, nor decrease it when subtracted from it, he thought had no existence." Just as in fragment 8 one premiss proceeded from the obvious observation that any particular object was a unity, so here - if this is the meaning of 'is called many categorically' - one premiss proceeds from the accepted observation

1. Lee, op. cit. 28.

that any particular object was many, that is, had a plurality of attributes. But as Lee[1] has rejected this line of argument, it will be advisable to pass this by, as perhaps an addition on the part of Simplicius, and look to the alternative suggested, that any object could be shown to be many by 'division'. This must surely refer to the argument from dichotomy now familiar to us or to some variation thereof. As we have already dealt sufficiently with this, showing that it emphasises the element of continuity in, for example, a line as composed of a succession of points in Extension, we may now turn to the other side of the paradox, where it is instructive to note that what is attacked is just the point - the other element in the Line besides Extension. The argument is to the effect that, since a point cannot increase the magnitude of a thing to which it is added, nor decrease the magnitude of that from which it is taken, it can be nothing, and hence a plurality composed of points would be nothing. This presupposes that the constituent points of plurality have no magnitude,[2] which will be recalled later. What is here to be discussed is rather that Zeno demolishes plurality by deducing contradictory predicates of it, for this is the substance of fragment 6:[3] "However, Alexander thinks that here too Eudemus is referring to Zeno as doing away with plurality. He says,'As Eudemus records,Zeno....tried to show that it is not possible for there to be a plurality because there is no 'one' among existing things, and plurality is a collection of units'". That is, the point is a nothing, therefore, Plurality, as a collection of points, here called 'units', is also nothing; but in virtue of the argument from dichotomy, it is also many. Thus, as sharing in contradictory predicates, the Many is demolished. It is notable that here we have a more general statement: we are not confined to the Line which was adduced as an example of Plurality, but are on more general ground:- Plurality in general, like the Line in particular, was a collection of units or points set out in the continuous, these points being here in fragment 5 assumed to have no magnitude.

v) Large and Small. Fragment 9 runs: "One of these arguments is that, if there is a plurality, things are both large and small, so large as to be infinite in magnitude, so small as to have no magnitude at all. Thus, in this argument he shows that what has

1. Lee, op. cit. 28. 2. But Ross, Aristotle's Metaphysics I. 245-6 ad 1001b7, apparently takes the null-point to be Zeno's reductio ad absurdum. So Miss Freeman, op. cit. 158-9, takes only the point which has magnitude to be Pythagorean, while the point without magnitude - this null-point - she thinks is a mathematical concept posited by those who saw the inadequacy of the Pythagorean point. But we have shown that both premisses must have been acceptable to the Pythagoreans: they must have held both types of point, which enables Zeno to draw out the contradictions implicit in their position.
3. Lee, op. cit. 26, takes fragment 6 as simply Simplicius' comment on fragment 5, for which reason it is dealt with here.

neither magnitude nor thickness nor mass does not exist at all. For, he argues, if it were added to something else, it would not increase its size; for a null magnitude is incapable, when added, of yielding an increase in magnitude. And thus it follows that what was added was nothing. But if, when it is subtracted from another thing, that thing is no less; and again when it is added to another thing, that thing does not increase, it is evident that both what was added and what was subtracted were nothing." We might pause here to note that this part of the argument is essentially that of the main argument in fragment 5 above. The text is then obviously continued in fragment 10[1] :"...Having first shown that 'if what is has not magnitude it would not exist at all', he proceeds/:'But if it is, then each one must necessarily have some magnitude and thickness and must be at a certain distance from another. And the same reasoning holds good of the one beyond: for it also will have some magnitude and there will be a successor to it....So if there is a plurality, they must be both large and small: so small as to have no magnitude, so large as to be infinite'". Again, the main argument here is just that of the infinite division of the Line, the argument from Dichotomy.[2] Therefore, here too we have the same conception of plurality as a collection of points or units set out in the continuous or Extension leading to the deduction of contradictory predicates of Plurality, smallness and largeness in magnitude.[3]

Other Fragments. Fragment 4 is a statment of the argument reducing the point to nothingness which we have already seen in fragments 5, 9 and 10. "...For what does not make greater when added, nor smaller when subtracted, he denies to have existence at all, on the grounds clearly that whatever exists has spatial magnitude." Fragments 1 and 7 are doublets, referring to the argument from dichotomy. The former reads:"For, runs the argument, if it were divided, it would not be one in the strict sense because of the infinite divisibility of bodies", and the latter:"Alexander says that the second argument, that from dichotomy, is Zeno's who says that, if what is had magnitude and were divided, then what is would be a plurality and no longer one..." These three, then, are only parts of Zeno's paradoxes, either parts of those already quoted above, or parts of some lost paradoxes along similar lines.

1. Lee, op. cit. 29, says that fragment 9 refers forward to the first part of the argument in 10, which is proved in 9 by way of anticipation. 2. Incidentally, this paradox seems to be identical with 5 : both use as premisses the reduction of the point to nothingness and the argument from dichotomy, and the conclusion of 5, that plurality is both many and nothing, may be simply. Simplicius' report of the conclusion of 9 and 10, that plurality is both infinitely large and small to nothingness.
3. Burnet, Early Greek Philosophy 362, misses the point when he summarises the paradox thus: "If the units have no magnitude, the thing will have none; if it has, the thing will be infinite." This is not a dilemma; the Pythagorean units were both with and without magnitude, but of course in different settings.

Finally, we are left with fragments 2[1] and 3,. These are not, in their present form, Zenonic paradoxes at all but dilemmas, in which I believe Simplicius (in fragment 2) was following Philoponus (in fragment 3). Both give alternative explanations, apparently of the rôle assigned to Zeno in Plato's Parmenides of supporting his master by showing that what is, is necessarily one. Thus, these dilemmas, or rather this dilemma - for both 2 and 3 refer to the same argument - are made up from some argument of Zeno's, which we must reconstruct as a paradox. The fragments read, abbreviated - 2: "If the One were divisible.....i) either...the whole will be made up of minima, but from an infinite number of them; ii) or else it will.... be made up of parts that are nothing." 3:"Each unit, then, is either....indivisible, or itself divisible into a plurality. Therefore, i) if each unit is .....indivisible, the whole is built up of indivisible magnitudes; ii) but if the units are themselves divisible, we shall again ask the same question about each of these units that are so divisible, and so ad infinitum...." That the same argument is used in each case is obvious, the only difference being one of terminology. Thus, i) the 'indivisible magnitudes' of 3 are called 'minima' in 2; ii) the infinite division of the whole in 3 is reported in 2 by saying that the whole is made up of parts that are nothing, for if the 'ultimate' units are themselves infinitely divided it could be said that they are reduced to nothing. By taking these two premisses, i) and ii), to form a 'both...and' instead of an 'either....or', the original paradox can be reconstructed thus: i) if the whole is divided ad infinitum, it will be seen to be composed of an indefinite number of minimal indivisible magnitudes; ii) if the whole is divided ad infinitum, there can be no end to the subdivision, so that its 'ultimate' parts are nothings, null magnitudes. Therefore, if there is a plurality, they must be both i) infinite, and ii) nothing. Fragment 5 made Plurality many and nothing, which is similar, but is it the same? This made out that Plurality was many by the argument from dichotomy, which is as much as to say that Plurality is infinite, but in fragments 2 and 3 both premisses i and ii proceed by infinite subdivision, the difference between the results of i and ii depending on the theoretical end-results of the sub-division - minimal units in the one case, still further divisible points in the other. The arguments then are different. Fragment 2 is Simplicius' restatement of 3, which is Philoponus' version of a paradox, which can be labelled vi) The Many is both Infinite and Nothing, but which he cast into the form of a dilemma. But it clearly presupposes that the ultimate constituents of things are unit-points of a twofold nature:

1. Lee, op. cit. 31 ad fragment 11:"Simplicius argues that fragment 2 is not Parmenides' as Porphyry says, but Zeno's,"wherefore Lee includes it among Zeno's fragments.

as mathematical points they are, like any other magnitude, infinitely divisible - ii) ; but yet they were conceived in a non-mathematical way as minimal or indivisible magnitudes beyond which the sub-division of things could not be carried -i). This agrees with the composition of the Many revealed in the other paradoxes - a Line, for example, composed of a succession of points in Extension was, quâ Extension, infinitely divisible, but quâ a succession of points, sc. indivisible minimal 'magnitudes', was divisible only so far and no further. Just what sort of points these could be that were indivisible minima must now be considered.

Deduction of the System Implied by his Criticism. We must fir st analyse each paradox above, and for this purpose it is necessary to classify the premisses used to draw the various pairs of contradictory conclusions. If we exclude for the moment the premiss of the self-evidence of the unity of any object, as in fragment 8 on page 142 above, all the premisses used fall into one of two classes: 1. those emphasising the Continuous as an element of the Many, and 2. those emphasising the constituent points. We can further subdiv ide 1 into premisses assuming infinite divisibility, either as merely asserted or as pressed to its logical conclusion, thus: a) that the Continuous is infinitely divisible, and b) that the process of infinite divisibility can never be completed, but leads logically to 'ultimate' nothings. We can subdivide 2 into premisses merely asserting that Plurality is made up of points and those making two distinctions, thus: c) that Plurality is made up of points, and d) that these points can have no real existence since they neither increase nor diminish that to which they are added or subtracted, and e) that continued sub-division must lead to these points as ultimate minima. To this scheme can be added the premiss provisionally excluded above, thus: f) that any particular object is obviously a unity.

Now paradox i lacks its constituent premisses, but ii is made up of a and c: Plurality is unlimited in number because it can be infinitely divided, and limited in number because made up of points that are as many as they are - that is, that are countable, theoretically at least.

Paradox iii is composed of premisses a and f: any plurality is many because divisible into many (infinite) parts, but one because self-evidently a unity.

Paradoxes iv and v are both deduced from a and d: iv, Plurality is many because divisible into many (infinite) parts, and yet nothing because its parts, points, have no real existence; v, Plurality is large to infinity because continued sub-division of a continuum implies always some part between any part already sub-divided, and yet small to nothingness because its constituent parts, points, can have no real existence, and so no magnitude.

Finally, paradox vi is deduced from b and e: Plurality is nothing because infinite division leads logically to ultimate nothingness, and infinite because infinite division must lead actually to minimal parts, points, which are infinite in number, since the division is infinite.

Hence, with the exception of f, all the paradoxes are based in the last resort on two fundamental assumptions, one of which is used for one side of the paradox, the other for the other side. Thus a and b, which form one part of paradoxes ii, iii, iv, v, and vi, are sub-types of 1 - that Plurality is infinitely divisible; and c, d, and e, which form the other part of paradoxes ii, iv, v, and vi, are sub-types of 2 - that Plurality is discrete, composed of an aggregate of points. This is very clear if we set out the paradoxes schematically as follows:-

ii	iii	iv	v	vi
a c	a f	a d	a d	b e

This means that Zeno gets his contradictory conclusions by pressing alternately the infinite divisibility of the Pythagorean Many, and the constituent points within this continuum. Therefore, we conclude that the Pythagorean Plurality was composed of an aggregate of points set out in a continuum. This is clearly a confusion of geometry with physics. Mathematical solids are infinitely divisible but physical bodies are not, but are divisible only down to minimal constituent bodies, as is acknowledged by premiss e' - the whole, when sub-divided, leads ultimately to minima. But such minima are not geometrical in nature, as they apparently were taken to be in premiss c, as used in fragment 11 on pages 141-2 above. There the Line was composed of a succession of points set out in Extension.[1] Hence, both bodies and magnitudes were conceived by the Pythagoreans as aggregates of points set out in Extension.[2] Whether such a system could be called Number-Atomism[3] is doubtful, since Atomism was rather an answer to Zeno's criticisms of Pythagoreanism[4] and there could hardly have been that quantitative conception of reality at so early a date which is implicit in any form of Atomism where quality becomes subjective appearance.[5] But there is more in this Pythagoreanism than just that parallel construction of magnitudes and things with a tendency to conceive the ultimate minima of bodies as geometrical points, and this more is in fact the explanation of this peculiar tendency.

1. The confusion between minimal particles and geometrical points is even more obvious in fragment 3 ii on page 145 above, where these points are assumed to be themselves divisible.
2. So Burnet, Greek Philosophy 82-3, that Zeno criticises Pythagorean things as μονάδων πλῆθος and Raven, Pythagoreans and Eleatics 71-2, that Zeno's criticism implies plurality as a sum of monads.
3. So Cornford, Classical Quarterly XVI.137 and XVII.7, and Plato and Parmenides 57-60.
4. Raven, op. cit. 76-77.
5. Frank, Plato und die sogenannten Pythagoreer 71-2 with 220.

The whole key to Pythagoreanism lies in a consideration of premisses d and e above. That points are the ultimate minima of Plurality is fundamental to the conception of things as aggregates of points set out in Extension, but even if these points seem to be conceived now as 'atoms' now as geometrical magnitudes, this does not explain how in d they can be said neither to increase that to which they are added, nor to decrease that from which they are subtracted. In fact, the whole operation of addition and subtraction smacks of arithmetic rather than of geometry. So in fragment 11, where these points were the points of a Line, they were nevertheless countable. This is soluble only if these points were further conceived as arithmetical units. That is, while Plurality was in one aspect composed of the Continuous, which lent a geometrical air to its constituent points, in another aspect these points, while properly physical and yet tending to be conceived geometrically, were further conceived arithmetically, the arithmetical unit being confused with the existing confusion between geometrical point and physical 'atom'. So Zeno was able to treat the constituent points of Plurality, in one and the same paradox, notably in fragment 3, as infinitely divisible like geometrical points (solids), and yet as indivisible and countable like arithmetical units. This is not so extraordinary as it sounds if we remember the general Greek conception of numbers,[1] probably Pythagorean in origin,[2] as aggregates of units set out geometrically in Space - the so-called figurate numbers, such as :: and ⁘ etc.[3] If, then, guided by this method of conceiving numbers, the Pythagoreans regarded the units of numbers as having spatial position,[4] we can see that it was a small step to identifying the units or points or 'atoms' or whatever they were called, which constituted physical bodies as well as geometrical magnitudes like the Line, with numerical units, which could be counted in theory at least, but which strictly speaking could increase only the number but not the magnitude of that to which they were added. It was this conception of the ultimate constituents of bodies as numerical units that explains the Pythagorean tenet that things are Numbers.

To sum up, then, Pythagoreanism before Zeno held that the general construction of Plurality was by points set out in the Continuous: bodies were made up of 'atoms' in Extension, magnitudes of points in the Continuous, Numbers of units in some sort of place, but these 'atoms' were confused with points on the one hand and with units on the other, things being Numbers inasmuch as their ultimate

1. See Ross, Aristotle's Metaphysics II.211 ad 1039a12; Taylor, Plato the Man and his Work 507; van der Wielen, Die Ideegetallen van Plato 14. 2. See Cherniss, Aristotle's Critidism of Pre-Socratic Philosophy 387. 3. See Robin, Platon 82 note 1; Burnet, Early Greek Philosophy 338 with note.
4. See Lee, op. cit. 32-4; Miss Freeman, op. cit. 158.

particles were unit-points. This, according to Cherniss,[1] is summed up in the two tenets that All is Number, and that Bodies are composed of points, and the same tenets are allowed by Frank[2] in respect of the early Pythagorean religious fraternity, and is in fact just that conception of Numbers as composed of units having magnitude and things as assemblages of such units as is witnessed by Aristotle, and which has been set forth above on pages 56-57.

b) Parmenides' Criticism.

Against Whom was Parmenides' Criticism Directed? Perhaps the clearest indication given by Parmenides of the identity of the parties against whom his criticism was directed is to be found in fragment 6[3] :"... I hold thee back from this first way of inquiry and from this also, upon which mortals knowing naught wander two-faced,..... borne along stupefied like men deaf and blind. Undiscerning crowds in whose eyes it is and is not the-same and not-the-same, and all things travel in opposite directions." Who are these mortals? The word in itself might seem to indicate what we would call 'the man in the street' whose outlook is that any object is both like one thing and unlike another. Indeed, 'men stupefied, deaf and blind' tallies with Heraclitus' description of the Average Man in his fragment 4:[4] "Eyes and ears are bad witnesses to men if they have souls that understand not their language." But there are very clear indications[5] that Parmenides included Heraclitus himself in the number of these mortals. For Heraclitus was two-faced, believing that things travel in opposite directions, inasmuch as his peculiar view of the world was characterised by the Upwards and Downwards Paths, Fire condensing to Water, and Water to Earth, and again Earth rarefying into Water and Fire.[6] In this connection it is notable that that the same word which Parmenides uses for things travelling in OPPOSITE (παλίντροπος) directions occurs in the fragments of Heraclitus[7] in connection with a mystical utterance summing up his whole philosophy of Harmony. Further, Heraclitus could be aptly dubbed the 'knowing naught' since it was one of his tenets that "We must follow the Common, for if we live thinking that we have an individual source of knowledge, we shall err."[8] Heraclitus claimed to have no knowledge of his own - he knew naught - but all knowledge came from the Logos or Common. Finally, that 'it is and is not the-same and not-the-same' is almost certainly a hit at such sayings as that we cannot enter the same river twice,[9] and that we both are and are not, enter and do not enter the same rivers.[10]

1. Aristotle's Criticism of Pre-Socratic Philosophy 389-390.
2. Plato und die sogenannten Pythagoreer 135.
3. See Burnet, Early Greek Philosophy 198 = Diels 18B6.
4. Burnet, op. cit. 147. 5. Raven, however, in Pythagoreans and Eleatics 25, discusses and dismisses this possibility, preferring to take the same allusions to be Pythagorean.
6. Diels 12B60, cp. 12B50 & 62. 7. Diels 12B51; also read as παλίντονος. 8. Diels 12B2. 9, Diels 12A6 & 12B91.
10. Diels 12B49a.

It is possible, however, to reach a tentative view of what Pythagoras might have held by examining the teachings of Anaximenes and Anaximander, and by confirming this by applying tothis view the criticisms of Parmenides. But before attempting this, it will be as well, for the sake of completeness, to mention the interpretations of his Way of Seeming as held by modern commentators. It is, I think, a safe generalisation to say that those commentators who cannot or do not see any special reference to Pythagoreanism in the Way of Truth take the Way of Seeming to be an exposition of the erroneous Pythagorean cosmology - so Burnet,[1] Robin,[2] and Ross.[3] The strongest evidence supporting this is the evidence that Parmenides was originally a Pythagorean or at least was associated with one.[4] But this is equally applicable to the view that Parmenides criticised Pythagoreanism in his Way of Truth and expounded his own beliefs in the Way of Seeming as plausible but not true.[5]

Deduction of What Pythagoras might have Held. Pythagoras, before he migrated to Croton about or before 540 B.C., lived in Samos.[6] Now Samos is not far from Miletus, so that Pythagoras would have learnt his philosophy from Anaximander and Anaximenes, the representatives of the Milesian school in Pythagoras' day.[7] Indeed, there is evidence that he was a disciple of Anaximander[8], and Jaeger[9] thinks that Pythagoras carried Ionian ideas to Italy. These ideas were as follows.

The main characteristic of Anaximander's philosophy was the Unlimited (ἄπειρον). In what respect was it unlimited? It seems impossible to answer this with any certainty. Qualitatively it was unlimited in the sense that it was indeterminate in quality, but this cannot have meant that it was undifferentiated Matter as "not any of the four elements but some different kind of substance," as Miss Freeman says in one place.[10] Cherniss[11] is certainly quite correct when he says that "If quality as distinct from matter was a concept not earlier than Socrates, then undifferentiated matter could not have been early and Anaximander's Unlimited was not such." In pre-Socratic times the 'hot' meant a hot thing, he continues,[12] and so Anaximander's Unlimited would be not a qualitatively undiffe-

1. Early Greek Philosophy 211 and Greek Philosophy 66.
2. Greek Thought 88-9. 3. Aristotle's Metaphysics I.133-4.
4. See Early Greek Philosophy 193-4. 5. Cornford, Classical Quarterly XXVII.110-111 and Plato and Parmenides 49-51.
6. Diels 4,2: Salmoxis was a slave of Pythagoras in Samos, and 4,8 : at the age of 40 Pythagoras moved from Samos to Italy, doubtless after the conquest of Ionia by Harpagus in 540, since 4,10 gives his floruit as 540. 7. Floruits respectively 570 and 550, according to Jackson, Texts to Illustrate a Course of Elementary Lectures on the History of Greek Philosophy from Thales to Aristotle, Macmillan 1914, page xii. 8. Burnet, Greek Phil.39.
9. The Theology of Early Greek Philosophy 38.
10. The Pre-Socratic Philosophers. A Companion to Diels 56.
11. Op. cit. 367. 12. Op. cit. 369 and 375-379.

rentiated body but a mixture of all quality-things which existed as such throughout all eternity, passing into and out of the Unlimited. Thus there was really no qualitative change. On the other hand, iff it was unlimited in a quantitative sense, as an inexhaustible reservoir, from which Becoming draws its nourishment,[1] it was not necessarily so, since, as Miss Freeman[2] points out, all things return to it as their source. However that may be, we can distinguish the following characteristic pattern in Anaximander's philosophy. There is only one ultimate principle, the Unlimited, which, as we stated above, is a mixture in which the Opposites are held together in neutralisation.[3] From this, pairs of Opposites separate out to form the Cosmos, of which Hot and Cold are the primary pair, and return again to their source according to the principle of Justice. That is, the emergence of individuals is a having too much and must be atoned for by ceding to others what they now enjoy,[4] Heat for example drinking up Water but giving it back as Rain.[5] In particular we can instance the separation of the original pair, Hot and Cold, the Hot embracing the Cold in a ring; but this Cold is itself composite, consisting of a layer of air with the earth within. The earth is wet, but the Hot dries it out except for the seas.[6] In this system we note the following: Anaximander's cosmology, while positing the Unlimited as the ultimate principle, actually makes use of the primary pairs as principles, the Hot and the Cold,. The further separation of the pairs Wet and Dry is effected by the action of the Hot on the Earth, the emergence of which is not explained but simply assumed. Let us leave the matter here for a while and turn to Anaximenes.

Anaximenes' principle was definitely unlimited in quantity, but not in quality since it was identified with Air.[7] All things came from this underlying substrate, by rarefaction and condensation,[8] or rather there was no subsisting substrate since Fire, Water and Earth were the same substance more tightly or more loosely packed. Hence, we have here an explanation of Becoming in terms of mechanical change, the difference in density being a quantitative difference.[9] Now this principle was identified with Air, probably because the connection between rarefaction and increase of temperature and of condensation with decrease of temperature, discovered by Anaximenes, was illustrated by him by breathing out with the lips slack or contracted respectively,[10] and this Air or Breath[11] was itself identified with Soul, and encompassed the Cosmos.[12] A last point

1. Jaeger, op. cit. 24. 2. Op. cit. 57. 3. Op. cit. 58-9.
4. Jaeger, op. cit. 34-5. 5. Robin, Greek Thought 43.
6. Miss Freeman, op. cit. 58-9, cp. Burnet, Early Greek Philosophy 66, based on Diels 2,10 and 2,11. 7. Diels 3A1 & 5.
8. Diels 3A5-9. 9. Cherniss, op. cit. 379-380, and Miss Freeman, op. cit. 65-66. 10. Miss Freeman, op. cit. 67-8.
11. Air or Breath said synonymously, Diels 3B2. 12. Burnet, Early Greek Philosophy 77; and references in notes 9 and 10 above.

Nature and by its agreement with the Milesians in this, that they do not seem to have given any satisfactory account of the origin of the Earth, which is what the Pythagoreans seem to have meant by the One[1] - or at least a proto-earth - and if the One was Seed it could hardly have had any more satisfactory account than that it was laid by a god or goddess in the Unlimited.

iii) and iv), if taken together, (and the confusion of Void and Air was natural in the days before Empedocles[2]) agree with the identification of Air with Breath by Anaximenes. With this can be taken v), that the Void was equated with the Unlimited, since the Air of Anaximenes too was unlimited in extent.

vi) cannot be paralleled, but it assumes two generative principles, Limit and Unlimited, and while the former name is lacking in the Milesian systems, both made use of two generative principles.

Aristotle's conceptions, then, in respect of these six points seem to be fair enough, since they agree with what is common to Anaximander and Anaximenes, the argument being that if Pythagoras was a disciple of the Milesians in his days at Samos, any system that he himself thought out would be likely to have resembled theirs. And this is confirmed by this, that Parmenides' criticisms can be shown to have been aimed at just these tenets, namely, that a) the One had a mysterious, unexplained origin; b) that the other principle besides the One was the Void, and this was unlimited; c) there were two elements, the Limit and the Unlimited, besides the One; d) the existence of Time, witnessed by Stobaeus. For we have seen in respect of a) that neither Pythagoreans nor Milesians gave a satisfactory account of the existence of the One, the proto-earth, but in Anaximander it was simply there, surrounded by a layer or ring of air, together constituting the Cold; in Anaximenes the ultimate principle, Air, is said to have encompassed the Cosmos; and in Pythagoreanism ii) the One as Seed could only have had some mythological origin. In respect of b), we have just seen that both Milesians conceived the Earth, the One, as surrounded by air, which was expressly identified with Anaximander's Unlimited; and in Pythagoreanism iv) and v) the Void, confused with Air, was equated with the Unlimited. As for c), the Milesians had two generatives, Hot and Cold or Rarefaction and Condensation, besides the Unlimited; Pythagoreanism had two elements, vi) Limit and Unlimited, but it still remains to determine whether or not these were apart from the One or whether the One was actually the former. I shall argue here in favour of the former alternative, before turning to the examination of Parmenides' criticisms.

Of modern commentators, Raven[3] might be instanced as one who

1. Cherniss, op. cit. 39, that in Metaphysics 1091a13-22 the One is the Universe.
2. See page 55 above.
3. Pythagoreans and Eleatics 43-44.

does not accept two senses in Pythagoreanism of the One, for he believes that Parmenides attacks, not Plurality derived from Unity, but two ultimate principles, Unity being one of them, so that for him the One is the Limit and nothing else. On the other hand, Burnet[1] says that the One had two senses, the whole of reality and the point as spatial unit, but assigns this to the mid V century B.C., leaving it uncertain whether this applied also to Early Pythagoreanism. As Raven's work was written primarily as a correction of Cornford's,[2] it might not seem to be very impressive that the latter cites the evidence of Eudorus and comments thereon that there was a confusion between two senses of the One, either as the good principle in conflict with the Unlimited, or the unit beginning the number-series. Guthrie[3] does not mention a second sense, but if as he says the Pythagorean Primal Monad was analogous to the Orphic Egg, it would seem that it had a second sense as the unit of Number, which is in fact the Limit.

However that may be, and apart from any consideration that may be drawn from the Milesian philosophers - for their One was obviously quite different from their two generative principles, although these principles did not arise from the One, as I believe was the case in Pythagoreanism, but from the Unlimited - Aristotle, if analysed, names the Limit separately from the One, thus implying their difference. So 1091a15-18:"They say plainly that when the One had been constructed, whether of Seed....., immediately the nearest part of the Unlimited began to be constrained and limited by the Limit." This shows, to my way of thinking, that the One was not the Limit, and since Aristotle has been shown to have been correct in most of the salient features of Early Pythagoreanism, why should he not be correct here too? Now while it is not clear from this evidence whether the One was a primal Monad, a sort of Orphic Egg whence emerged the Limit and Unlimited, or whether it was itself a product of these principles, or whether there were originally these three principles, no one has maintained the last possibility, and the middle one is out of court since Parmenides, as will be shown presently, criticises the lack of derivation of the One. Hence, I believe the Pythagorean One was original, and from it emerged the Limit and Unlimited, but, using the commentators' views cited above, the One was also, in a secondary sense, identical with the Limit - namely, as the unit of Number. We shall see that this view exactly fits the criticisms of Parmenides, and to this we now turn.

An Examination of Parmenides' Criticisms. Following the numeration used on page 154 above, the points which Parmenides made against Pythagoreanism are as follows:-

1. Early Greek Philosophy 377-8. 2. Plato and Parmenides 4-5.
3. Orpheus and Greek Religion. A Study of Greek Religion 219.

a) Against the unexplained origin of the One:- We surmised above that the One as Seed arose in some unexplained way. This seems to be criticised by Parmenides in "For what kind of origin for it wilt thou look?.....I cannot let you say it came from What Is Not; for it can neither be thought nor uttered that anything is not. If it came from nothing, what need could have made it arise later rather than sooner: thefefore, it must either be altogether or not at all. Nor will the force of truth suffer aught to arise besides itself from that Which Is Not."[1] That is, the One as Being could not have arisen from some thing else - the Unlimited as Not-Being - and if it IS it could not have arisen from nothing. Therefore, it could not have been generated at all.

b) Against the Void as a principle, and against its conception as Unlimited:- But if such a One did exist, Parmenides argued that there could be nothing else, and since this something else was conceived as the Void, it is probable that he refers to this conception of the Void[2] as Something besides the One in "For this shall never be proved, that the things That Are Not are; and do thou restrain thy thought from this way of enquiry."[3] Further, this Void was conceived as infinite - as Unlimited - hence, "It is the same and it rests in the same place, abiding in itself.....Wherefore it is not permitted to What Is to be infinite; for it is in need of nothing; while if it were infinite, it would stand in need of everything."[4] Parmenides, thus, criticises the infinity of the Void, its wandering nature (for like Anaximenes' Air it wandered), and its existence as something other than the One.

c) Against the derivation of the Limit from the One:- Cornford,[5] who is followed by Tredennick,[6] believes that Parmenides criticises the evolution of two forms, Limit and Unlimited, from the One, but Raven[7] disagrees and takes these two forms as ultimate, identifying the One with the Limit. Aristotle's Table of Contraries[8] would seem to favour Raven, but not necessarily so if we accept the evidence cited on page 155 above, since we showed there that "the One" had two senses: it was both the Primal Monad from which emerged the Limit and the Unlimited, and it was also the units which constituted the Limit. Now I maintain that the criticism which follows is difficult unless it be allowed that the Limit was derived from the One either by its multiplication or by its division into a number of units. For a Seed grows, and so the One as Seed also grows, and this is referred to when Parmenides asks, "How and whence could it have drawn its increase?"[9] That this does not mean that the One grew by

1. Diels 18B8, lines 6-13. 2. Cp. Cherniss, op. cit. 95 note 401, that Parmenides showed as against the Pythagoreans that Being was one and there was no Void.
3. Diels 18B7; cp. Burnet's remarks in Early Greek Philosophy 207.
4. Diels 18B8 lines 29-33. 5. Plato and Parmenides 28.
6. Aristotle's Metaphysics (Loeb) xvii. 7. Pythagoreans and Eleatics 43-4. 8. Met. 986a22-6. 9. Diels 18B8 line 7.

inflation like a balloon but that its growth was rather a reduplication is shown by, "It is complete and immovable, neither is it incomplete.[1] Nor was it ever, nor will it be; for now it is, all at once, one, continuous."[2] For to make it grow by reduplication is to deny its completeness: when it was a unity it Was, and when it reduplicates to become many it Will Be; and its state as an aggregate of units, when it has been reduplicated, makes it discrete, so that Parmenides can deny this by insisting on its continuity. Parmenides, then, criticises the reduplication of the One, and it is this One reduplicated, this resultant aggregate of units, that I take to be the Limit. We have stated that such a Limit is discrete, and this seems to be criticised in, "Nor is it divisible, since it is all alike.....Wherefore it is wholly continuous; for What Is is in contact with What Is."[3] The lacuna refers to Rarefaction and Condensation, but the insistence that Being is in contact with Being hardly suits this: it implies that the view criticised makes things discrete, as we have said: things are units (the Limit as the One reduplicated) set out in Void (the Unlimited as the other than the One).

d) Against the concept of Time:- We saw from Stobaeus that with the Pythagoreans Time was drawn in from the Unlimited along with the Void, and to this conception of Time Parmenides refers in, "How can What Is be going to be in the future? Or how could it come into being? If it came into Being, it Is Not; nor IS it if it is going to be."[4] The further criticism of Generation and Destruction as unreal[5] could apply to any school except the Eleatic itself. This exhausts all the relevant evidemce.

Parmenides, then, criticises the sudden and unexplained origin of the One as Seed, indeed its having any origin at all; he criticises the emergence of the two elements from it - the Unlimited as the other than the One he criticises because what is other than What Is cannot exist at all, and the Limit as the One reduplicated he criticises because the One is one and cannot be so incomplete as to require reduplication; and he further criticises the resultant discreteness of things constructed from Limit and Unlimited as from units in Void on the grounds that Being is continuous, and finally the reality of Time, Generation and Destruction. Now this discreteness of things, this composition of things from units and Void, is perfectly consistent with that constitution of things which Zeno criticised, and it is to the relation between the pre-Parmenidean and the pre-Zenonic schools that we now turn.

1. Reading οὐδ' with Brandis. 2. Diels 18B8 lines 4-6.
3. Diels 18B8 lines 22-5, compare Burnet's comments, op. cit. 204.
4. Diels 18B8 lines 19-20, compare Raven, op.cit. 27-28.
5. Diels 18B8 lines 40 and 10-11.

c) One Pre-Zenonic Pythagorean School. If the Limit was derived by reduplcation of the One and so was an aggregate of units, and if the Unlimited was constrained and limited thereby, then things would be constituted as units in a Void, and this is the very construction of Plurality that Zeno criticised: For we said on pages 148-9 above that the system which Zeno attacked conceived bodies to have been made up of 'atoms' in Extension, magnitudes of points in the Continuous, and Numbers of units in some sort of Place, 'atoms', points and units being confused so that things were regarded as Numbers. The Pythagoreanism, then, which was attacked by Parmenides was substantially the same as that attacked by Zeno, and there was only one pre-Zenonic Pythagorean school.[1] So Raven[2] points out that it was the same school that said that the One draws in the Unlimited and that things were Numbers having Magnitude, as against the two schools of Cornford,[3] the first being a monistic inspiration with a dualistic system of Nature, which Parmenides attacked, and after Parmenides a Number-Atomism which Zeno attacked.

One might ask, then, what effect the criticism of Parmenides had on Pythagoreanism. The answer to this is indicated by Plato in his Parmenides 128CD:[4] "These writings (of Zeno's) are really a support to Parmenides' work against those trying to mock him that if there is a One, many ridiculous and contradictory condlusions follow. But his book opposes these Pluralists, returning their

1. Modern interpretations of this Early Pythagoreanism which agree on the whole with the above conclusions, but which give much prominence to the religious side of Pythagoreanism - which we have altogether neglected as irrelevant to this thesis - are as follows: BURNET, Early Greek Philosophy 100-121 and Greek Philosophy 42-56, that this school held transmigration, the three lives, a way of life by following which man is released from the Cycle of Birth, boundless breath breathed in to separate the units of things and Numbers, Numbers arranged by dots in patterns, square and oblong numbers, the three means and the harmonic ratios, health-patterns formed by a balance among the opposites found in the bodily constitution, a harmony of the spheres formed by arranging Anaximander's three wheels at the intervals of the fourth, fifth and octave. CAMERON, The Pythagorean Background of the Theory of Recollection 16-36, emphasises the religious side: transmigration, immortality, kinship of all Nature, release from the Cycle of Birth being achieved by the recovery of the omniscience of the divine soul by observation of the physical embodiments of Number. LEE, Zeno of Elea 32-4, confines himself to that phase of Pythagoreanism attacked by Zeno: the One as an element of Plurality had the properties of the geometrical point, yet with certain characteristics of the numerical unit; perhaps equalled the unit spatialised. Other interpretations with only minor deviations are those of RAVEN, Pythagoreans and Eleatics esp. 27-8, 34, 43-5; MISS FREEMAN, The Pre-Socratic Philosophers, A Companion to Diels 82; and ROBIN, Greek Thought 62-3, whose view is vitiated in my opinion by conceiving a 'Central Fire' as the agent of the inspiration of unlimited Breath, and the formation of particular things by Rarefaction and Condensation.
2. Pythagoreans and Eleatics 45, cp.54-55. 3. See page 147 above.
4. Pointed out by Cherniss, op. cit. 398.

ridicule with interest by showing that their assumption of Plurality leads to even greater absurdities than the assumption of Monism, if it be properly examined." This is evidence that the Pythagoreans replied to Parmenides' criticism by applying dialectics to his hypothesis 'If the One is' and showed to their satisfaction that it led to absurdities. But Zeno countered this ridicule by utterly refuting their Pluralism, and Raven[1], who has followed this line of evidence in detail, points out that Melissus completes the circle by resisting Eleaticism so as to avoid that Pythagorean criticism, which he reconstructs from an examination of Melissus' arguments, thus: the Pythagoreans argued i) that the One was two not one, because if the One is infinite, then there must be something outside it, to wit, the Void, because finiteness implies an outer limiting entity, and so Being becomes two instead of one. ii) If the One is finite, it must have beginning, middle and end,[2] and so be three not one. iii) If the One is corporeal, it must have parts and so be many. The hypotheses 'If the One is finite', 'IF the One is corporeal', are drawn from Parmenides' own conclusions as to the nature of the One. Melissus, unable to counter these arguments, made the One infinite,[3] which preserved its unity since there could now no longer be anything outside it, nor could it have beginning, middle and end; and he also denied its corporeality (but without thereby asserting that it was incorporeal) so as to avoid its having parts.

Early Pythagoreanism, then, was unaffected by Parmenides' criticism, since it answered this by counter-attacking the Eleatic thesis so effectively that Eleaticism had to be modified; but what action did they take as the result of Zeno's criticism, which made their thesis even more absurd than they had made Parmenides'? Nearly all modern critics agree that it underwent some change in order to avoid this criticism, but they largely differ as to the nature of this change. I shall summarise the features of this pre-Zenonic school and then turn to this question in section ii.

1. Op. cit. 79-86.
2. This argument is made use of by Plato in his first hypothesis in the Parmenides and is based on such extant evidence as De Caelo 268a10:"For, as the Pythagoreans say, the world and all that is in it is determined by the number 3, since beginning, middle and end give the number of an 'all', and the number they give is the Triad." So Aristoxenus, Diels 45B2, that "the Pythagoreans.....made the Monad the beginning of Number, and Number and aggregate of units....and odd number having beginning, middle and end."
3. Diels 20B3.

Summary. We have seen that Early Pythagoreanism[1] resembled the systems of Anaximander and Anaximenes in certain respects and was characterised by an animistic view of Nature. The One was a Seed, and when it came into existence the other than the One was distinguished as the Void, actually confused with Air. This was inhaled by the One, which thereupon reduplicated itself into units, and both Numbers, figured geometrically as points set on a background, and things, composed of points set out in Extension, were constituted by this Void separating the units derived by the reduplication of the One. By virtue of its nature the Void was called the Unlimited and the units were called the Limit by virtue of their distinguishing the nature of things. This construction of things out of the units of Number - for these units had spatial position - is what was meant by things being Numbers, and resulted in the discreteness of Matter. Aristotle's evidence, so far as it deals with the above points, is thus fully corroborated, both in respect of the One breathing in the Void and in respect of the units of Number having magnitude. Parmenides criticised the origin of the One and the derivation from it of the Void and of the Limit, and touched on the resultant discreteness of sensible things. The Pythagoreans countered this by drawing out the absurdities in the One: if finite, it must have bounds, which makes it 2 not 1; it must have beginning, middle and end, which makes it 3; if it is corporeal, it must have parts and so be many. For these reasons Melissus made the One infinite and denied its corporeality. But Zeno more effectively came to the support of his master by showing that the Pythagorean Many was yet more absurd than the Eleatic One had been shown to be. According to their postulates, the Many as limited is small to nothingness, since the arithmetical units constituting its Limit have no magnitude; but the Many is large to infinity, since in respect of its other element, the Unlimited, each part is infinitely divisible. Parmenides criticised the principles of Pythagoreanism, Zeno the structure of their Many, and it remains to examine what action was taken as the result of his criticism.

1. We must remind the reader that we have neglected the religious side of Pythagoreanism as irrelevant to this dissertation. Some of the leading tenets belonging to this side of Pythagoreanism are mentioned in note 1 on page 158 above.

Section ii. Post-Zenonic Pythagoreanism.

a) Students. The Tradition of a Split in Pythagoreanism. Iamblichus has recorded a tradition that there was a split in Pythagoreanism, and while not all modern critics believe that there was more than one Pythagorean school,[1] I think that I am correct in saying that all critics who cite this tradition are agreed that it is to be accepted, although they differ as to its interpretation. I shall begin by stating this tradition, then I shall recount the various divergent interpretations of it, and finally I shall examine these interpretations and give my own reconstruction.

Diels 8,2: "....Two types of Pythagorean philosophy and two kinds of philosophers, the ἀκουσματικοὶ and the μαθηματικοί. Of these the μαθηματικοὶ were admitted to be Pythagorean by the others, but the ἀκουσματικοὶ were not,nor to have derived their doctrine from Pythagoras, but from Hippasus."[2]
Diels 8,11: Hippasus is called "the ἀκουσματικὸς of the Pythagoreans", and again we have "the ἀκουσματικοὶ around Hippasus."
Diels 8,15:"Pythagoras and the μαθηματικοὶ around him" who called one of the three means ὑπεναντία , but this was called the harmonic mean by those around Archytas and Hippasus."
These references agree[3] in naming the two schools respectively the μαθηματικοὶ and the ἀκουσματικοί , and in associating the former with Pythagoras, the latter with Hippasus.That the followers of Hippasus were what might be called heretics appears not only from the fact that the others denied them the title of genuine Pythagoreans, but also from the tradition that Hippasus was expelled from the brotherhood, so to speak, since he put into writing the mystical λόγος in order to calumniate the Pythagoreans,[4] and perished in the sea for his impiety, that is, either for revealing the inscription of the dodecahedron in a sphere or for revealing its construction.[5]

Now all critics with whose works I am acquainted agree on an interpretation of this evidence in a way contrary to what is stated by it, with the exception of Miss Freeman whom I follow and whose view will be dealt with separately. Influenced no doubt by the collection of Pythagorean catch-words and cant sayings under the title of ἀκούσματα and a secondary meaning for μαθηματικὸς as 'mathematician', or perhaps more generally as 'belonging to the

1. See page 9 above, especially Cherniss, cited in note 12.
2. Compare Porphyry loc. cit.:"For there was a double form of his teaching, and of those resorting to him some were called μαθηματικοί , others ἀκουσματικοί , and the μαθηματικοὶ learnt the more arcane tenets and the significance of his teaching worked out in detail, whereas the ἀκουσματικοὶ heard only summaries without more exact explanation." This suggests something quite different from what Iamblichus records and will be discussed later.
3. But Cameron, The Pythagorean Background of the Theory of Recollection 24 note 15, says that Iamblichus elsewhere reverses the order. 4. Diels 8,3. 5. Diels 8,4.

sciences', Cornford[1] applies ἀκουσματικοί to the original, the religious side of Pythagoreanism, and, in terms of his own interpretation of the history of the sect, he applies the term μαθηματικοί to the scientific wing, the Number-Atomists. Following him, although rejecting his Number-Atomism and disagreeing in certain other respects, Raven[2] agrees that two strands of Pythagoreanism fell apart, religious instruction persisting among the ἀκουσματικοί, and scientific investigation being undertaken by the μαθηματικοί. Along similar lines Robin[3] accepts a schism at the end of the V. century, and calls the ἀκουσματικοί the devout believers, the μαθηματικοί the men of science. Finally, Frank[4] names those preserving the true Pythagoreanism the ἀκουσματικοί, and calls the μαθηματικοί heretics, "So-called Pythagoreans", whose tradition went back not to Pythagoras but to Hippasus. These all agree in two respects, which are at variance with the evidence cited: Firstly, Cornford gives 490 B.C. as the date of Number-Atomism; Raven makes his men of science posterior to Zeno, which is even later; Robin talks of the end of the V. century and the second generation of Pythagoreans; and Frank dates his "So-called Pythagoreans" at about the time of Democritus, which is later still - but the evidence quoted, at least that of Porphyry and Diels 8,15 implies that this division fell within the life-time of Pythagoras, and he must have been very old to have been alive at the turn of the century, not to mention the end of the V. century. But since we do not know the date of his death, and Hippasus is such a shadowy figure that we cannot argue from any assumed date for his life-time - indeed, Frank[5] has pointed out that there were probably several persons bearing this name - this objection is not conclusive. However, the second objection is that it is Pythagoras who is associated in the evidence cited with the μαθηματικοί - these are said to have been the acknowledged Pythagoreans - whereas it is the ἀκουσματικοί who were the followers of Hippasus and not generally recognised as genuine Pythagoreans. The above critics, then, cannot be correct in their interpretation of the meaning of the words. For this reason I prefer the explanation given by Miss Freeman, which also better suits the facts.

Following Porphyry, Miss Freeman[6] says that Pythagoras taught his most advanced doctrines to a select group only, μαθηματικοί, which according to the meaning of the root verb μανθάνω she translates Students, while there was an outer circle who were allowed to hear only rough outlines or heads of the teachings

1. Classical Quarterly XVI.139. 2. Pythagoreans and Eleatics 2. 3. Greek Thought 55-6. 4. Plato und die sogenannten Pythagoreer note 174 & page 69. 5. Op. cit. 261-2: he appears as the grandfather of Pythagoras (Diog.VIII.1), as successor of Pythagoras (Diels 7A1 & 3; 8,1a,3,4,5,13), as contemporary of Democritus (Diels 8,12; 55A1), and as founder of a mathematical school (Diels 8,2,4,15). 6. Op. cit. 74.

without exact explanations, ἀκουσματικοί, which again she translates according to the meaning of the root verb ἀκούω as Auditors. The two later branches of Pythagoreans[1] cannot be traced directly to these two grades, but when Hippasus founded a branch of the school, which did not derive from Pythagoras at all,[2] (here she deals with the evidence of Iamblichus), they were called ἀκουσματικοί, because they were thought to be the successors of the Pythagorean outer ring of pupils who were not initiated into the advanced doctrines.

The matter is really of little importance, but Miss Freeman's interpretation keeps closest to the evidence, and if we retain her titles for the two grades within the circle of Pythagoras for the two groups of later Pythagoreans, then we have the Students as the true followers of Pythagoras, i.e. the religious wing who retained the original doctrines of Pythagoras, and the Auditors, i.e. the scientific wing who believed something different from the original teachings of the Pythagoreans and whose claim to be called Pythagorean was challenged by their rivals. This, then, supports and explains Aristotle's use of the restrictive καλούμενοι (so-called)[3]; they called themselves Pythagoreans, but he hints at the doubtfulness of their claim by means of this epithet. But I wish to deal here only with the Students, the true successors of Pythagoras, and for this purpose another tradition must be examined.

Cylon. Iamblichus[4] records a tradition that Pythagoras was driven out of Croton by Cylon, and all his followers were slain except Archippus and Lysis; Archippus went back to his native town, Tarentum, and Lysis went to Greece, first to Achaea, then to Thebes, where Epaminondas heard him.[5] Other Pythagoreans (apparently from a different district of Italy) resorted to Rhegium, but the political situation growing worse, all except Archippus left Italy. The most zealous were Phanton, Echecrates, Polymnastor, Diocles and Xenophilus who kept their original customs and studies. Such is the substance of Iamblichus' report, but it obviously telescopes several generations, since, if Lysis taught Epaminondas he could not have been a contemporary of Pythagoras, as the account implies, and the most zealous Pythagoreans here named are stated by Diogenes Laertius[6] to have belonged to the 9th or 10th generation of Pythagoreans, to have been the last of the Pythagoreans, to have been known by Aristoxenus, who lived in the IV century B.C.

Now Plutarch[7] has something similar: When the brotherhoods of the Pythagoreans, overcome by faction, were driven out of the various cities, the followers of Cylon fired a house in Metapontium where the Pythagoreans who were still banded together had gathered

1. Op. cit. 76. 2. Op. cit. 75 & 85. 3. See pages 30-1 above.
4. Diels 4,16. 5. But Frank, op. cit. 294 n.1 thinks this last point is a fiction. 6. Diels 4,10.
7. Diels 32A4a.

for a meeting, and all were destroyed there except Philolaus and Lysis, both being young men, who broke through the flames and escaped. This Diels dismisses ad loc. as a fiction (Romanhaft), apparently referring to the substitution of Philolaus' name for that of Archippus, since he refers back to the account of Iamblichus.

Now the interpretations of this tradition by modern critics fall into three groups, those dating the commotion of Cylon within the lifetime of Pythagoras, those dating it by using Plutarch, and those concentrating on the common element in the two accounts, namely, Lysis. Robin[1] thinks Cylon set fire to the house which he seems to place in Croton about 470 B.C., only Archippus and Lysis escaping, and Pythagoras removing to Metapontium.[2] But Pythagoras was 40 years old when he left Samos in the time of the tyrant Polycrates, 540, for Croton in Italy,[3] which would make him 110 years old in 470. Hence, as Miss Freeman says,[4] this event could not have taken place in his lifetime. Raven[5] dates the event between 440 and 430 as most consistent with Philolaus being a young man and escaping to Thebes, which he is known to have left before 399.[6] But Miss Freeman[7] agrees with Diels that it is unlikely that Philolaus was a refugee from Croton, and indeed Burnet[8] cites evidence that the school at Rhegium broke up when Philolaus went to Thebes, pointing to a different persecution of the Pythagoreans. Thirdly, in Pauly Wissowa's encyclopedia[9] Cylon is said to have been a young nobleman who was annoyed by Pythagoras and with his dependants set fire to the house of Milo in Metapontium, where the Pythagoreans had gathered, and only two escaped, one being Lysis. The feud continued until the last days of the Pythagoreans. The persecution is dated between 410 and 395 B.C., but Cylon surely could not have still been alive at so late a date. However that may be, Lysis as an old man was Epaminondas'[10] teacher. Lysis was born according to Zeller not before 420, but the author of the monograph prefers Rohde's date, 440. Lysis must have died before 379, when the persecution of the Pythagoreans spread from Italy to Thebes. Epaminondas was born according to Pomtow in 418, but in 430 or 427 according to Unger. If we add that the teacher of Philolaus also was this Lysis[11] we shall have exhausted the relevant evidence.

As it stands, Imablichus' record cannot be accepted for the reasons mentioned above. But it can be regarded as a compressed

1. Greek Thought 51-52. 2. Diels 4,13 :"When Pythagoras had lived at Croton for 20 years he removed to Metapontium."
3. Diels 4,8. 4. Op. cit. 78 note 1. 5. Op. cit. 95.
6. Phaedo 61DE. 7. Op. cit. 220. 8. Early Greek Philosophy 319. 9. Paulys Realencyclopädie der Classischen Wissenschaft XI.2461 s. Κύλων 2.
10. Op. cit. V. 2675 s. Epaminondas. 11. Miss Freeman, op.cit.220

statement of four different time periods, thus:[1] i) Pythagoras was driven out of Croton by Cylon. Since Pythagoras came to Croton at the age of 40 in the year 540 and removed to Metapontium 20 years later, it is quite possible that he was driven out of Croton by Cylon in 520 and then settled in Metapontium, where he died some years later. The seat of the school would then have been Metapontium,. ii) All Pythagoras' followers were slain except Archippus and Lysis, Lysis proceeding to Thebes, where Epaminondas heard him. Iamblichus does not say that Pythagoras was alive, nor that Cylon was alive. It is possible that Plutarch is referring to this when he gives the more circumstantial account of the followers of Cylon setting fire to a house in Metapontium, only Philolaus and Lysis escaping, but he seems to have included Philolaus mistakenly, and for this reason the young age that he attributes to these men may also be erroneous. Now if this event took place in 410 and Rohde's date for Lysis' birth -440 - is correct (although I personally would have preferred a much earlier date), Lysis would have been 30 years of age and so old enough to have taught Philolaus, perhaps 10 years his junior. However that may be, Lysis escaped to Thebes, and if Epaminohdas was born in 418 (Pomtow), then, in 410, although Lysis could not be said to have been an old man (which is why I should prefer a date for his birth about 20 years earlier than Rohde's), Epaminondas would have been a youth, which would square with Cornelius Nepos[2] that this youth preferred the society of the unsmiling old man above that of his fellows, and by 'youth' (adulescens) he clearly means an age about 16 or 17 since he continues[3] that "after he had become an ephebus...", which means the age between 18 and 20 years. Further, in 362, when Epaminondas died in battle, this date of birth would make him 56, which is not too old for an active life. iii) Other Pythagoreans resorted to Rhegium, but the political situation growing worse, all except Archippus left Italy. It is reasonable to follow Burnet here and include Philolaus among these exiles from Rhegium. This event may have taken place at any time between the affair at Metapontium in 410 and Philolaus' return from Thebes to Italy before 399. iv) The most zealous of the Pythagoreans, Phanton, etc., belong to a later generation, the last of the Pythagorean school according to Aristoxenus. If the Echecrates of this list is the same as the Echecrates of the Phaedo, he would seem to belong to the next generation after Philolaus, which agrees with his having been the pupil of Philolaus.[4]

The Religious Wing. This tradition is not in itself of any importance, but it is a pointer that the Pythagoreans involved in these civil disturbances were more likely to have been the Students, the genuine followers of the politico-religious school founded by

1. Here I largely follow Miss Freeman, op. cit. 77-8 & 220-1.
2, XV. Epaminondas ii.2. 3. Op. cit. ii.4. 4. Diels 32A4.

Pythagoras, than the Auditors who made a doubtful claim to be Pythagorean and were rather a mathematical and scientific school. Further, Iamblichus' account concludes, so far as it was quoted above, with the words, "Who kept their original customs and studies" which confirms the surmise that the Pythagoreans here discussed were the genuine followers of Pythagoras. To this Diels[1] adds that they introduced into Greece the notion that the soul is immortal and undergoes transmigration - they were, then, a religious rather than a scientific school. In the next place, this cannot be a complete list of all Pythagoreans, for we know that Archytas was in Tarentum at the time of Plato's first visit to Magna Graecia,[2] Eurytus, Philolaus and Hippasus were roughly his contemporaries, and there were other Pythagoreans who seem to have lived at about the same time, but except that Philolaus is mentioned, none of these others are named in this tradition, although it implies that those who are cited were well-known. I suggest that this omission is due to the tradition dealing only with the Students, whereas Archytas, Eurytus and the rest were not genuine Pythagoreans at all, but Auditors, and so had no place in Iamblichus' list here.

This list, then, deals with the Students, but unfortunately it affords no evidence concerning their beliefs apart from their introduction into Greece of transmigration, and the suggestion in the vague expression, "they kept their original customs and studies", that they preserved Pythagoras' Way of Life with its food taboos and practised θεωρία, doubtless the observation of analogies of Number in the Universe.[3] We can add to this the picture of Philolaus[4] as given by Plato in his Phaedo and perhaps the Gorgias,[5] where he appears purely as a religious teacher, concerned chiefly with the soul and its relation to the gods and the Underworld. But the question of Philolaus' teaching is one of great uncertainty and will be left over for discussion below. This much, however, is clear: that history knew of a religious wing in Pythagoreanism, that these were the Students as distinguished from the Auditors, and they preserved the original Pythagorean customs and teachings, among which Transmigration can be named. This squares exactly with what Aristotle attributes to the Theologians of Metaphysics 1091a34-b3, and so corroborates his evidence[6] in this respect, and further

1. Given as 4,8a in Diels Vol. I. page xx-xxi.
2. For this, see chapter 3 below. 3. Cp. Cameron, The Pythagorean Background of the Theory of Recollection 51 :"To both Philolaus and the Pythagoreans the world is revealed as the physical embodiment of Number." 4. Field, Plato and his Contemporaries 179 :"Philolaus appears only as a moral and religious teacher", Frank, Plato und die sogenannten Pythagoreer 68 :"What Plato indicates for Philolaus is throughout Orphic - no trace of any concern with mathematics or science."
5. Burnet, Early Greek Philosophy 321 note, takes the κομψὸς of Gorgias 483AB to represent Philolaus, although this is denied by Frank, op. cit. 298-301. 6. See pages 60-64 above.

corroborates by implication his knowledge of another school, not genuinely Pythagorean but only so-called, who must have been the Auditors. And to these we now turn.

b) Auditors. Now, concerning the tradition of a split in Pythagoreanism into Students and Auditors dealt with above, it might be argued that there is no real evidence in the tradition that this entailed a change in respect of their metaphysics, and, even if this could be taken as implied, the evidence does not state that this change was effected subsequent to the time of Zeno, much less that it was effected in order to obviate his criticisms, which is the theme of this chapter, and finally no indication whatsoever is given of the nature of the assumed change, or, what comes to much the same thing, of the tenets held by the Auditors. I shall however attempt to obviate these objections by showing what changes in Pythagoreanism would have been necessary in order to avoid Zeno's paradoxes and by detailing the systems, if they can be so named, of the traditional founder of the sect of Auditors, namely Hippasus, and of those philosophers associated with him. If it can then be shown that the views of these philosophers form a coherent doctrine, and that this doctrine conforms to the requirements laid down for a system that is to avoid the criticism of Zeno, and incidentally of Parmenides too, then the line of my argument will be that since this doctrine is that of Hippasus and his associates, it is the system of the Auditors; since it squares with the deduction of what is required to obviate Zeno's critidism, it is post-Zenonic, and because the system represents a change from the original teachings of Pythagoras, it avoids Zeno's criticism because it was an answer thereto. Since we have already shown what were the pre-Zenonic tenets of Pythagoreanism, and since the doctrines of the Auditors which will be set forth presently will clearly represent fundamental differences therefrom, it will have been demonstrated that there was a change in Pythagoreanism, and this chapter will conclude by showing that Aristotle's conceptions of the philosophy of the Italians - that of the Auditors - was historically correct.

α) Deduction of the post-Zenonic Pythagoreanism. It will be recalled that the Early Pythagoreanism derived its two principles, the Limit and the Unlimited, from the Primal Monad, the latter as the other than the One, the former as the One reduplicated. Further Parmenides criticised firstly the unexplained origin of the One or Primal Monad; secondly the derivation of the Unlimited on the grounds that, since the One IS, what is other than the One (that is, what is other than Being) is Not-Being, is nothing; thirdly, the derivation of the Limit on the grounds that if the One is one it cannot become many, cannot be reduplicated, and also that the One must be continuous and not discrete, as it would be if reduplicated

into an aggregate of units. To show how it was possible to avoid these three criticisms, it will be convenient to leave the first until last. Now the objection that the Unlimited must be Not-Being will always hold true as long as the One is the first principle, for if Being is one whatever is other than the One, sc. the Unlimited, must needs be Not-Being. Hence, the first task of the Pythagoreans was to start from a different conception of the Monad.[1] Cornford[2] is correct that the later Pythagoreanism had to drop the evolution of the Opposites, Limit and Unlimited, from the One, and this meant that instead of the One the Opposites, Limit and Unlimited, were ultimate. Being is thus assumed to be many and Pluralism becomes possible. The Unlimited is no longer what is other than the One, but is original; the Limit is no longer the One reduplicated, but is original. Being is at least two, and both the Limit and the Unlimited are Being. Thus, by assuming two ultimate principles, Pythagoreanism could escape the objections of both of Parmenides' criticisms, that the Unlimited as Not-Being was nothing and that the Limit could not be the One reduplicated since the One could only be one. There remained the first objection, how could the One be explained: Raven[3] has pointed out that the One could now be derived as the first product of the Limit and the Unlimited. Another innovation would have to be the distinction between the Void or Unlimited and Air, since Empedocles[4] had discovered about 455 B.C. that these were two separate conceptions. Hence, all that was necessary to avoid Parmenides' criticisms was to give up the derivation of the Limit and Unlimited from the One and to postulate these as primary, making the One their first product; and if this change was effected subsequent to the time of Zeno, we expect that the further change was made of distinguishing the Unlimited from Air. As for the objection that generation was impossible, this could no longer be held since, the One being derived, all other things also could be derived in their turn.

Parmenides' criticism of the discreteness of the Limit if it was constituted by an aggregate of units was worked out in detail by Zeno, and his objections, being nearly all ultimately based on the argument that Plurality could not be composed of a continuous Unlimited and a discrete Limit, had to be met. Plurality could be either continuous or discrete, but not both together. This confusion in Pythagoreanism rested on their fundamental conception of things as Numbers, that is, that their constituent parts were numerical units separated by geometrical, i.e. infinitely divisible, space. Make these constituent units themselves geometrical in nature, that is, conceive them no longer as indivisible magnitudes but as truly

1. Cp. Cornford, Cambridge Ancient History IV.vii.551 :"The two schools part company in the early V. century, starting from a different conception of the Monad." 2. Plato and Parmenides 59.
3. Op. cit. 118 & 124. 4. Diels 21B100.

geometrical points, and Plurality becomes altogether continuous, and Zeno's paradoxes lose their effect, and Parmenides' criticism of the discreteness of the One as well. Hence, to avoid Zeno's criticisms, Pythagoreanism had to abandon its equation of things with Numbers,[1] and redefine the point. Now Euclid is generally accepted, in certain parts of his work, to represent Pythagorean arithmetic and geometry, and while he regards Number as an aggregate of units, the point is defined as pure position with no magnitude. Thus, the Line becomes, not a succession of points, sc. with magnitude, but Extension bounded by points, sc. without magnitude.[2] Logic requires that, if the Line is Extension bounded by points,[3] then the Plane is Extension bounded by lines, and the Solid is Extension bounded by planes. So the connection between arithmetic and geometry or physics is severed. For things are no longer constituted from numerical units, but by Extension bounded by surfaces and only ultimately bounded by points, but not at all built up of points. Zeno is met: the Line is continuous and not at all discrete, and body cannot be at once both infinitely large and infinitesimally small because no longer constituted out of units either with or without magnitude, but it is pure Extension.

Thus, we deduce for post-Zenonic Pythagoreanism, that it postulated two elements as primary, the Limit andthe Unlimited,of which the Limit constitut ed the bounds in the case of any entity, whether Number, Line, Plane, or Solid, and the Unlimited was in all cases Extension. The first product of these two elements was the One, Numbers were constituted by limiting a background (χώρα) by means of units, Lines by Extension bounded by geometrical points, Planes by Extension bounded by lines, and Solids by Extension bounded by planes. Since bodies are no longer composed of numerical units, things are no longer Numbers; since the bounds of things were geometrical points, the point was no longer a unit having position. We have here, then, a completely different system from that of Early Pythagoreanism, and one, further, which met the criticism both of Parmenides and of Zeno.

(b) Hippasus and the Auditors. Now the Auditors were distingu-

1. Taylor, Plato the Man and his Work 505 :"Zeno's criticism could be met by severing the arithmetical connection." Raven, op. cit. 55 :"Zeno's attack resulted in the separation of arithmetic and geometry." Cp. 76-77. Also cp. Cornford, Plato and Parmenides 60: "As a result of Zeno, arithmetic was separated from geometry: arithmetic remained discrete, geometry continuous." But I do not agree that this means that the point flowed into the line (p.12), whatever that may mean. Raven, op. cit.108-9, takes this last as contemporary with the Platonists.
2. Raven, Classical Quarterly N.S.1.148:"In deference to Zeno later Pythagoreans admitted two points in contact could not constitute a line, and kept the line=2 by making points without magnitude the limits of a line in a continuum of infinitely divisible space." 3. In all cases Extension is the Unlimited, as its name implies, and the limit or bound is each case is the Limit.

ished as the followers not of Pythagoras but of Hippasus, and one would expect to derive some conception of the beliefs of this school from an examination of the tenets attributed to Hippasus and those philosophers who are associated with his name. I shall first detail the tenets of each of these in turn, then show that the beliefs of these philosophers are substantially the same, constituting in fact what may be called a school or sect, and finally I shall show that this system squares with the tenets deduced above as a possible answer to the criticisms of Parmenides and Zeno - that in short the Auditors were a school that not merely came after Zeno but held a form of Pythagoreanism modified in order to meet Eleatic criticism. In the following account of the beliefs of these philosophers, however, I shall largely confine myself to what seems relevant to the main course of the argument.

Hippasus. Hippasus was of Metapontium[1] or Croton.[2] He wrote a book calumniating the Pythagoreans,[3] apparently on account of his disgrace as the result of his revealing one of their secrets, the inscription of the dodecahedron in a sphere.[4] Of great importance is the fact that he devoted himself to mathematics, instructing Theodorus and Hippocrates.[5] The branch of mathematics in which he seems to have specialised was the mechanics of sound, for he made four bronze discs of equal size in diameter but differing in thickness in the ratios of 4:3, 3:2, and 2:1, which when struck sounded a concord,[6] and he demonstrated this concord (the octave) by filling vessels with water according to these ratios and striking the vessels.[7] His followers advanced this study of harmonics by relating the speed and the slowness of the musical notes to these ratios.[8] Finally, one of his tenets was that Number was the first example of Cosmogony,[9] which implies that the generation of Number was at the same time the generation of the Cosmos.[10] How this was applied will be discussed under Philolaus below.

Archytas. One of the teachers of Archytas was Hippasus, so that it is to be expected that the teachings of Archytas resembled those of Hippasus. He was a Tarentine, the contemporary of Plato.[11] He seems to have constructed all things from two elements, since he is coupled with Plato in respect of the Great and Small, which in

1. Diels 8,1. 2. Diels 8,2. 3. Diels 8,3.
4. Diels 8,4 bis. 5. Diels 8,4. 6. Diels 8,12.
7. Diels 8,13, with similar evidence from Nicomachus in 8,14.
8. Diels 8,13. 9. Diels 8,11.
10. Cp., but in different connections, Cornford, Plato and Parmenides 18 and Raven, Pythagoreans and Eleatics 148.
11. Diels 35A1.

P. T. O.

Archytas was represented by Not-Being.[1] Further, the One is both Odd and Even,[2] and the Decad embraces all Number.[3] But most of the evidence is concerned with his studies in mathematics,[4] which concerns his finding the means between two given lines as a step in the process of doubling the cube; in harmonics,[5] showing the ratios between the notes in the scale and between three types of scales, the enharmonic, the diatonic, and the chromatic, and the connection between the rate of vibration of a string and the height or depth of the note; and in astronomy,[6] chiefly concerned with the speed of the stars and their risings and settings. We might notice that mathematics is connected with harmonics by determining the intervals between the notes according to ratios,[7] and harmonics with astronomy[8] apparently by comparing the speeds of the stars with those of vibrating strings in relation to their distance from the centre of the universe and the length of the string respectively. There is, it is true, no trace of this in the references quoted, but these are so interpreted by Ross[9] and by Frank.[10] One last relevant fact is that Aristotle seems to have found a connection between the philosophy of Archytas and that expounded by Plato in the Timaeus, for according to Hesychius[11] he wrote a volume about this, where 'Timaeus' means not a Locrian philosopher but Plato's dialogue, as appears from the preamble to section XXXI in Rose's Fragments of Aristotle.[12]

Philolaus. Besides Hippasus, another teacher of Archytas was Philolaus.[13] The evidence in his case is particularly puzzling. On the one hand, as we have stated above,[14] he seems to have been little more than a religious teacher, apparently belonging to the sect of the Students, who are called by Aristotle the Theologians; on the other hand, his fragments and the evidence of post-Aristotelian writers show him to have been a 'scientist' with beliefs similar to those of Hippasus and Archytas dealt with above. Miss Freeman[15] states that modern opinion ranges from acceptance to

1. Diels 35A23 :"Plato calls the Great and Small, Not-Being, the Irregular, and all things which through these incline to the same place, Motion. But it seems absurd to call this very thing Motion. For when Motion is present, that which is in it appears to move, but though the Unequal or Irregular exists, to insist that it moves is ridiculous. For it is better to call these things causes, as does Archytas." That is, Archytas calls Not-Being and the Irregular, causes, but Plato calls them Motion, because whatever is in them appear to move. Thus Archytas held Not-Being as a cause.
2. Diels 35A21. 3. Diels 35B5. 4. Diels 35A14, 15, 19 and Horace I.xxviii.1-2 in 35A3: "maris et terrae...mensorem."
5. Diels 35A16, 17, 19a and 35B1. 6. Horace, op. cit. 5-6: "aerias tentasse domos animoque rotundum Percurrisse polum.."
7. Diels 35B2. 8. In Diels 35B1 these studies are said to be sisters. 9. Ross, Aristotle's Metaphysics I.145 ad 986a2.
10. Plato und die sogenannten Pythagoreer 30-35. 11. Diels 35A13.
12. Page 168 - so also Diels ad 36,2, that in Diogenes' and Hesychius' catalogues of Aristotle's works the 'Excerpts from the Timaeus and Archytas ' refers to an epitome of Plato's didogue.
13. Diels 32A3. 14. See pages 166. 15. Op. cit. 221.

rejection of his fragments as a whole, but one of the most recent writers, Raven,[1] points out that most of his fragments are spurious and other evidence is late and unreliable, and most modern writers whose works I have read[2] and who deal with the subject are unanimous that his fragmen ts are forgeries. Indeed, Raven[3] precludes the possible argument of no smoke without fire by showing that certain key fragments are in fact forgeries drawn from Aristotle's account of the Italian philosophy - but not quite consistently, for he assumes[4] that Philolaus would have held a Pythagoreanism which had suffered modifications as the result of Zeno's criticism, and supposes that he held matter to be continuous because this was the view of Eurytus. But if his fragments and the other evidence adduced by Diels are unreliable, it seems better to assume that the picture of Philolaus given by Plato[5] is more correct than one which rests on undemonstrable surmises. Nevertheless, there is this much truth in Raven's procedure, that such evidence would have been known by the Ancients to have reflected the views of some Pythagorean school or other, whether it was that of Philoalus or not, and with this in mind it may not be amiss to include here a review of what was attributed to this 'Philolaus.'

He came from Croton[6] or perhaps Tarentum,[7] and passed over to Thebes, where Cebes 'heard' him,[8] returning before the death of Socrates, and possibly being with Eurytus in Italy when Plato sailed thither from Cyrene, if this tradition is true.[9] His ultimate elements were the Limit and Unlimited,[10] and the first compound of these was the One,[11] which in one aspect is the Even-Odd because derived from both Odd and Even mixed together,[12] and in another aspect is the Hearth of the Whole or Universe,[13] a central fire around which the 10 heavenly bodies move, one of which is the Counter-earth.[14] This so-called Philolaic system explains the tenet that Number was the first example of Cosmogony.[15] For the Central Fire was One, the Earth 2, and the Sun 7, etc.,[16] so that the generation of each Number was the generation of the heavenly bodies. Further, this One is the beginning of all things,[17] and in geometry

1. Pythagoreans and Eleatics, 93.
2. Frank, Plato und die sogenannten Pythagoreer 139; Raven, loc.cit.; Ross, Plato's Theory of Ideas 161; Bywater, Journal of Philology I.53; Cherniss, Aristotle's Criticism of Pre-Socratic Philosophy 386; but Miss Freeman, The Pre-Socratic Philosophers, A Companion to Diels 229, seems to accept some at least of these fragments, and Taylor, Plato the Man and his Work 436, ditto.
3. Op. cit. 98-100. 4. Op. cit. 101-3. 5. See page 166 above
6. Diels 32A1. 7. Diels 32A4 & 6. 8. Diels 32Ala.
9. Diels 32A5. 10. Diels 32A9; 32B1 & 2. 11. Diels 32B7.
12. Diels 32B5. 13. Diels 32B7. 14. Diels 32A16 & 17.
15. See page 170 above. 16. Ross, Aristotle's Metaphysics II.484; but Robin, Greek Thought 64, has Counter-earth = 1, Earth = 2, Sun = 7; and Raven, op. cit. 169-172, makes the first generated the Central Fire, then the Counter-earth, Earth, Moon, Sun (so = 5), five planets, and Fixed Stars, in that order. 17. Diels 32B8.

the Line is bounded by 2 points, the Surface (triangle) by 3, and the Solid (tetrahedron) by 4 points, and 1,2,3, and 4, make 10, the perfect Number.[1] This is the Tetractys.[2] The five regular solids are associated with the four cosmic elements, Fire, Earth, Air, and Water, and the Ship of the Universe.[3]

Eurytus. Another of Philolaus' pupils besides Archytas was Eurytus. He came from either Croton, Metapontium or Tarentum, according to different accounts.[4] He would seem to have been younger than Philolaus, since he was his pupil, and also because he is said to have been told of a miraculous voice from the tomb of Philolaus who had been dead for many years.[5] He was possibly older than Archytas, since the latter reported a certain procedure of his.[6] This was to "imitate the figures of living things with pebbles, as some people bring Numbers into the forms of triangle and square", and so, by regarding "numbers as the causes of substance and of Being....as boundaries, as points are of spatial magnitudes," he worked out what the numbers were of man, horse, plant, etc.[7] The Pseudo-Alexander says ad loc. that he would take green, black, red, and other coloured stones; outline the figure of a man or other living creature in lime on a wall, and fill in the face, hands and other parts with these pebbles; and by counting the pebbles used he would thus determine the number of man. Raven[8] explains that the surfaces characterising an object were delineated in colours to bring out the perspective, and the pebbles were used to determine the bounds of these surfaces.[9] A count gave the number of the object, e.g. 250 for man, 360 for plant. It is surfaces, then, that act as limits in Eurytus' system to give the sensible body, and these surfaces were themselves limited by points. Thus, it is no great step to deduce that for him body was constituted out of Extension delimited by bounds, first surfaces, finally points.

Others. Of other Pythagoreans of this generation we know very little. Hicetas of Syracuse held the doctrine of the Counter-earth[10] which we have seen was ascribed to 'Philolaus'. Timaeus of Locri is a very shadowy figure, being mentioned only by Plato in his Timaeus[11] and Proclus' commentary thereon.[12] Other references to Timaeus seem to refer to Plato's dialogue rather than to a living person, and it may well be that he was a figment of Plato's imagination, for the writings ascribed to him are now rejected as forgeries,[13] and of Occelus, a predecessor of Timaeus,[12] we know even less.

1. Diels 32A13. 2. Diels 32A11. 3. Diels 32A13 & 32B12.
4. Diels 33,1. 5. Diels 33,1. 6. Diels 33,2.
7. Metaphysics 1092b9-14 = Diels 33,3. 8. Op. cit. 103-4, cp. Classical Quarterly N.S.1.147-9. 9. Cp. Diels 45B42, that surface or colour is either the Limit or in the Limit, and the Pythagoreans call surface 'colour'; cp. Metaphysics 1091a15-18: "When the One had been constituted, whether out of planes of of surface..." 10. Diels 37,2. 11. Diels 36,1.
12. Diels 36,3. 13. Diels 36,4. Cp. Miss Freeman, op. cit. 240.

I These Auditors are the Post-Zenonic Pythagoreans. On page 161 we quoted Diels 8,11, "the ἀκουσματικοὶ around Hippasus", which indicates that Hippasus was the founder, so to speak, of the sect called the Auditors, and Diels 8,15 implies that one of these Auditors besides Hippasus was Archytas. We have seen that Archytas was in fact a pupil of Hippasus and also of Philolaus, and that another pupil of the latter was Eurytus. These four, then, were closely connected. Both Hippasus and Archytas were distinguished as mathematicians, set out the concordant notes of the scale as ratios, and connected the length of the string with its rate of vibration. Now 'Philolaus' and Hicetas believed that there were ten heavenly bodies, one being the Counter-earth, and that these revolved about a Central Fire. Since 'Philolaus' and Archytas held the doctrine that 10 embraces the whole nature of Number, this doctrine of the Tetractys seems to have been connected by them with the number of the heavenly bodies, 10, and this again implied, as we saw in the case of Hippasus, that the generation of Numbers, that is from 1 to 10, was that of the Cosmos, the 10 heavenly bodies. This was connected with harmonics by Archytas by comparing the speeds of the stars with those of vibrating strings in relation to their distance from the centre of the Universe and the length of the string respectively, so that all the above tenets formed one doctrine. Since, then, both 'Philolaus' and Archytas made use of two elements, the Limit and Unlimited, from which they derived the One as their first product, and since also 'Philolaus' and Eurytus both connected magnitudes with the Tetractys, it seems that a further feature of the beliefs of this school was that Magnitudes were composed of the Continuous bounded by limits, solids for example being bounded by planes, these doubtless by lines, and the last by points. We have here, then, one doctrine common to these Auditors - although the evidence is lacking to show that each of these philosophers held every one of the tenets in question - and we can tabulate these tenets for reference as follows:-

1. The school was characterised by specialisation in mathematics;
2. Its studies in harmonics centred around the discovery of the concordances of the octave and the connection of the length of the string with its rate of vibration;
3. This was applied to astronomy by seeing an analogy between the distance of the heavenly body from the centre and the length of a musical string, between its speed of revolution and the speed of vibration of a string sounding a note;
4. Its astronomy was characterised by 10 heavenly bodies, a Counter-earth, and a Central Fire;
5. The generation of the 10 Numbers was that of the Cosmos;
6. 10 was the perfect Number;
7. There were two elements, Limit and Unlimited, from which the

One was derived as their first product;

8. The Line was bounded by two points, and a body was bounded by its surfaces, these again ultimately by points;

9. We can add as a last feature the conception of the four Cosmic Elements or Roots as regular solids, Fire as the Pyramid, Earth as the Cube, etc., although attested only for 'Philolaus'.

This set of doctrines is substantially what Raven[1] deduces as those of the Post-Zenonic Pythagorean school, and while most of these tenets cannot be deduced from the nature of the Eleatic criticism, we have shown on pages 168-9 above that in order to obviate that criticism Pythagoreanism had to assume two elements, the Limit and the Unlimited, as ultimate and derive the One from them as their first product, and so to compose magnitudes from the Continuous and geometrical bounds, the solid being limited by surfaces, surfaces by lines, and the lines by two points. These agree perfectly with points 7 and 8 above, and between them were held by Archytas, 'Philolaus' and Eurytus. The conclusion, then, seems inevitable, that these philosophers, together with the others named above, belonged to one school, that of the Auditors, and that these were posterior to Zeno in time and modified the original doctrines of Early Pythagoreanism in certain respects in order to obviate the criticisms of Parmenides and of Zeno.

γ) Corroboration of Aristotle's Conception of Pythagoreanism.

Now nearly every one of the above nine points is found in the reconstruction[2] from Aristotle's evidence of the Philosophy of the Italians. 1. They were THE mathematicians of their day; 3. they seem to have connected the heavenly bodies with the numerical expression of the notes of the scale; 4. they held 10 heavenly bodies, one being the Counter-earth; 5. the generation of this Cosmos was the generation of Number; 6. the Number 10 was the Perfect Number; 7. their elements of Number were the Odd and Even, analogues of the Limit and Unlimited, and while it cannot be shown that they derived the One therefrom, the One was composed of Odd and Even in this sense at least, that it partook of the nature of both, making odd numbers even and even numbers odd; 8. magnitudes were composed of the Continuous, limited by points to give lines, by lines to give planes, and by planes to give solids; 9. and perhaps they identified the four Roots with four of the regular solids. All these tenets are attested or at the least implied by Aristotle's evidence concerning the Philosophy of the Italians, and to these we can add the fact that Hippasus, Archytas, Philolaus and Eurytus were Italians,[3] and Hicetas a Sicilian, and that

1. See Classical Quarterly N.S.1.147-8, compare his Pythagoreans and Eleatics 150-166. 2. See Summary on pages 53-4 above.
3. According to the Catalogue of Iamblichus (Diels 45A) the Tarentines were Philolaus, Eurytus, Archytas and some others.

Aristotle calls the Italian philosophers the 'So-called Pythagoreans' which agrees very well with their having been Auditors and not Students, followers of Hippasus rather than of Pythagoras. Finally, we have seen that Aristotle places Plato in some relation to the philosophy of the Italians, and it is notable that Archytas is named in connection with Plato by the independent evidence[1] and in respect of one of the tenets specified by Aristotle at that - his element as analogous to the Great and Small.

We see, then, that in respect of Pythagoreanism and its various schools,[2] Aristotle's conceptions were historically correct, if one makes due allowance for his practice of not clearly distinguishing one school from another. But an analysis of his evidence reveals his knowledge of at least three Pythagorean schools before Plato, Early Pythagoreanism characterised by the One inhaling Infinite Breath and both things and Numbers constituted by units having position in the Void; the Theologians who, as their name implies, were a religious sect and who preserved the teachings of the Master, especially the equation of things with Numbers, except that they made the Good come later in 'evolution' instead of identifying it with the One; and the 'so-called Pythagoreans', the Italian Philosophers, who were predominantly mathematicians and concerned themselves with harmonics and astronomy and radically altered the original Pythagoreanism by a different conception of the One, by making Matter continuous instead of discrete, and by incorporating Empedocles' four Roots. These three schools are attested by independent evidence. The Early Pythagoreanism was shown to have been correctly conceived by an analysis of the teachings of Anaximander and Anaximenes and the implications of the criticisms of Parmenides and of Zeno; tradition implies the existence of a religious wing of Pythagoreanism - the Students - who preserved the original teachings and customs, and is perhaps reflected in Plato's references to Philolaus; the Auditors have been shown to have met the objections of the Eleatic criticism and their teachings are preserved in a fragmentary condition in the evidence concerning Hippasus, Archytas, 'Philolaus', Eurytus, and Hicetas. Finally, we have certain passages in Plato's dialogues which seem to refer to these Auditors or Italian philosophers, which corroborate the conclusions reached above, but it will be convenient to leave these over for a later part of this work when the evidence of Plato's dialogues is discussed.

1. See page 171 note 1 above.
2. For more detail refer back to pages 153-4 with 149 (top) for Early Pythagoreanism, and 166 (sub fin.) for Students.

Chapter 2. Platonism.

Introductory.

The aim of this chapter is to check Aristotle's conceptions of Platonism point by point, by examining evidence independent of his. We are concerned not with Platonism in general, not even with the interpretation of his Theory of Ideas in particular, but only with those tenets cited by Aristotle in Metaphysics A.vi and commented upon in Part 1, Chapter 2 above, together with as much other material as is required to elucidate or elaborate them. Of such independent evidence we have two broad groups: the writings of Plato, and the scraps of information preserved by various ancient commentators. The examination of these two groups of evidence will be undertaken in separate sections below, and our introductory remarks here will be confined to the former - Plato's writings.

The Date and Order of the Dialogues. Now if Plato had expounded his beliefs in a treatise or series of treatises, the problem of the use of his evidence would have been much simplified, but as it is he preferred to cast his writings into the form of dialogues, and dialogues in which the chief speaker was, for the most part, some historical personage, so that it is not at all obvious whether the utterances of such speakers are to be regarded as representing the thoughts of those personages or of Plato himself. This fundamental problem of what might be termed the significance of the dialogue form will be the subject of the first section below. The immediate task is to place the dialogues in the order of composition, since this order becomes vital if there is any possibility that there was some development or change in Plato's thought, which indeed is highly probable in view of the fact that his writings were spread over approximately half a century. Accordingly I shall give a brief summary of Plato's life, into the framework of which I shall assign the relevant dialogues, following Ross for their order of composition.

Since Plato was ø 28 at the ƒtime of Socrates' death in ƒ399,[1] and barely 40 when he went to Sicily in 388,[2] he was born in the year of Diotimus,[3] 428-7 B.C.[4] As his teachers we hear only of Cratylus and Socrates.[5] There is a ƒtradition that he went to Megara after the death of Socrates,[6] and thence to Cyrene where he met Theodorus.[7] If he served in the Corinthian War,[8] he would doubtless have returned to Athens before 395. In 388 he travelled to Italy

1. Diogenes Laertius III.6. 2. Epistle vii.324A.
3. List of archons in Pauly Wissowa II.586-8.
4. Diogenes Laertius III.2 - Apollodorus gives Ol.88, i.e. 429-5; Diogenes Laertius III.3 - in the same year that Pericles died.
5. Metaphysics 987a32, cp. Ritter and Preller p.234, § 307a:"Ex iis quae de Platonis educatione puerili singula traduntur, vix quidquam fide dignum." 6. Diogenes Laertius II.106 & III.6.
7. Cp. Theaetetus 143D. 8. Cambridge Ancient History VI.311; cp. Shorey, What Plato Said 6.

and Sicily to see the volcano[1] and to acquaint himself with the Pythagorean discoveries.[2] He returned home the next year and founded the Academy.[3] In 367 Dionysius I, whom Plato had met in Sicily, died, and Plato was summoned by Dion to attempt the education of his successor along the lines laid down in the Republic, and to re-establish the Syracusan State.[4] In this year Aristotle, a lad of 17, entered the Academy, presumably during Plato's absence. A third trip to Sicily, partly to get Dion reinstated, partly in a last desperate attempt to educate the tyrant, followed in 361-0, but in vain.[5] He died in 348-7 B.C. in his 81st year.[6]

Now Ross[7] gives this scheme of the dialogues which are relevant to the Theory of Ideas:

399-389: Charmides, Laches, Euthyphro, Hippias Major, Meno.
388-367: ?Cratylus, Symposium (385+), Phaedo, Republic, Phaedrus, Parmenides, Theaetetus (369+).
366-361: Sophist, Politicus.
360-348/7: Timaeus, Critias, Philebus, Epistle vii (353-2), Laws.

He is undecided about the position of the Cratylus, and I shall take the liberty of placing it somewhat earlier. Further, I disagree with Ross concerning the genuineness of Hippias Major. He accepts it on the strength of Grube's[8] defence thereof, but seems to have missed Miss Tarrant's[9] reply to Grube's article. As other commentators[10] have decided against this dialogue, I feel it is safer not to make any use of it. In one other point Ross' list requires supplementation.

In Phaedrus 278E-9A Socrates prophesies that the young Isocrates will go far for there is philosophy in him.[11] This prophecy is referred to by Cicero,[12] that while 'Socrates' refers to the young Isocrates,[13] Plato has in mind Isocrates as an old man (de seniore). As Isocrates was 6 or 7 years Plato's senior,[14] and as 'senex' implies an age of 60 or more, the terminus a quo for the Phaedrus must be set down as 374 B.C. Further, Howland[15] takes Phaedrus 267AB as referring back[16] to Isocrates' claims in the Panegyricus, which was published in 380 B.C., so that the Phaedrus is posterior

1. Diogenes Laertius III.18. 2. Cicero, De Republica I.16.
3. Diogenes Laertius III.7. 4. Diogenes Laertius III.21; Epistle vii.332E; Plutarch, Dion xi.1 & 2. 5. Diogenes Laertius III.23; Plutarch, Dion xviii.2-3; Epistle vii.339A, 345D.
6. Hermippus in Diogenes Laertius III.2, the year of Theophilus, cp. V.9. 7. Plato's Theory of Ideas 10.
8. Classical Quarterly XX.134-141, cited by Ross, op. cit. 3-4.
9. Classical Quarterly XXI.82-85. 10. Field, Plato and his Contemporaries 49; Robin, Platon 30; Rogers, The Socratic Problem 188. 11. Howland, Classical Quarterly XXXI.151-9, however, takes the prophecy to be a condemnation with faint praise.
12. Orator xiii.42. 13. Zeller, Plato and the Early Academy 132, takes the prophecy as Plato's own, thus taking the Phaedrus very early; but his ordering of the dialogues is quite erroneous.
14. Diogenes Laertius III.3. 15. Loc. cit.
16. I prefer this to the view that in Panegyricus 8 Isocrates takes the sarcasm on the rhetorical powers of Gorgias and Tisias in Phaedrus 267AB as a belligerent claim for himself.

to this date, which of course adds nothing to the above conclusion. But a more precise date is given in this, that the Phaedrus is later than Ad Nicoclen, probably published in 372, and earlier than the Nicocles, written in 368. Therefore, I date the Phaedrus between 373 and 368. Now the Phaedrus is said by Diogenes Laertius III.3 to have been Plato's first work, which is manifestly absurd, but the tradition can be saved if we interpret this in the sense that it was the first work of his later period, a view which is that of some of the best of modern commentators,[1] and is corroborated by two indications: it is the first work in which Dialectics, alluded to in Phaedrus 265E-6B, has the new meaning of Division,[2] and where the soul first appears as the Self-mover, cp. Phaedrus 245C-E.

This gives the following scheme:

Plato born 428-7.

Death of Socrates 399.

Charmides, Laches, Euthyphro, Cratylus, Meno.

Plato's First Voyage 388.

Plato founds the Academy 387.

Symposium (385+), Phaedo, Republic, Phaedrus (373-368), Parmenides, Theaetetus (369+).

Plato's Second Voyage 367.

Aristotle enters the Academy 367.

Sophist, Politicus.

Plato's Third Voyage 361.

Timaeus, Critias, Philebus, Epistle vii Laws.

Plato's death 347.

1. Lewis Campbell, Classical Review X.42; Stenzel, Paulys Realencyclopädie II.iii.860; Robin, Greek Thought 203; Ross, Plato's Theory of Ideas 81; compare Jaeger, Aristotle 15: "Plato's abstract and methodological period began about 369."
2. Cp. Robinson, Plato's Earlier Dialectic 73-4: "The account of Dialectics in the Phaedrus, Sophist, Politicus, Philebus, is not the same as in the Phaedo and Republic. It is Division in the former, the method of hypothesis in the latter." Ross, Plato's Theory of Ideas 81: "In the description of Dialectics in Phaedrus we have not the method of the Republic but of Sophist and Politicus"; also 118: "The conception of Dialectics in Phaedrus, Sophist and Politicus is quite different from that of the Republic." We must then disregard Shorey, What Plato Said 554 ad Phaedrus 265B: "The feigned introduction of the word, Dialectics, as new proves nothing."

Section i. The Significance of the Dialogue Form.

The Problem of the Platonic Socrates. Plato wrote no metaphysical treatises but only a series of dialogues in the majority of which Socrates is represented as the chief speaker. The question is whether it is Socrates' or Plato's views that are expounded - the views of the other characters than the protagonist need not detain us: as Field[1] says, the other characters simply represent the views of the 'plain man'. If the representation of the chief character in the dialogues was intended to be strictly historical, then we cannot expect to discover very much of the views of Plato from the dialogues, but only of Socrates, for example. Such is the view of Burnet[2] and Taylor[3]. With this we have dealt above.[4] Perhaps the strongest argument against it is that according to the ancient commentators, and according to Plato himself if Epistle vi.322D is genuine,[5] the Theory of Ideas which is put into Socrates' mouth in the dialogues was not Socratic at all but Plato's own discovery. Further, consistency requires us to take the picture of Parmenides in the dialogue of that name as historically true if the picture of Socrates is taken to be historical; but Parmenides can hardly have held all the opinions there ascribed to him, and least of all his criticism of the Theory of Ideas[6]! Indeed, so many objections have been raised against the strict historicity of the dialogues, some of which have been mentioned above,[4] that it is no longer necessary to argue against this view.[7]

If, then, the dialogues were not meant to be strictly historical representations of the teachings of Socrates, does it imply that 'Socrates' is only a lay-figure,[8] and the views expressed are entirely and unreservedly Platonic? For example, there are certain notable passages in the dialogues where Socrates doubts, chiefly but not exclusively in connection with Reminiscence and Immortality. According to the biographical interpretation of the dialogues this doubt is easily explained as Socratic irony.[9] But if the contrary theory is accepted, that the thoughts are essentially Plato's own, then Plato must also doubt where 'Socrates' doubts, and the doctrines of Reminiscence and Immortality, which are those most affected, must be myths.[10] So in fact Stewart[11] explicitly states that Anamnesis was not seriously meant; it is myth not dogma. So Shorey,[12] that Recollection is PLAINLY mythological symbolism.[13]

1. Plato and his Contemporaries 188-9. 2. Greek Philosophy 212-4; Plato's Phaedo xii et passim, cp. Classical Review XXVI.161.
3. A Commentary on Plato's Timaeus 28 & 32; Classical Review XXV.251.
4. Pages 4-5. 5. Field, Plato and his Contemporaries 57.
6. See Hackforth, The Composition of Plato's Apology 171-2; Field, op. cit. 191; Ross, Plato's Theory of Ideas 7.
7. Cp. Ross, Op. cit. 157. 8. Shorey, What Plato Said 21-22.
9. Cp. Burnet, Plato's Phaedo 26 ad 63C.
10. Stenzel, Plato's Method of Dialectic 4-9.
11. The Myths of Plato 344-5. 12. Op.cit. 513 ad Meno 81DE.
13. The capitals are mine.

This is, of course, a possible interpretation of Platonism and would require a detailed examination of Plato's Earlier Theory and its implications in order to refute it, but such an interpretation seems to me to founder on its failure to explain why Plato chose Socrates, whose philosophical views must have been more or less well known to his contemporaries, as his chief speaker, if the views he put into Socrates' mouth were not those of Socrates at all, but his own,. Shorey, for example, would not deny that the trial of Socrates actually took place and that the Apology was intended to be some sort of representation of what happened at that trial. But this hardly suits his view that the Platonic Socrates was purely a lay figure. If the Socrates of the Apology was the historical Socrates, then the Platonic Socrates could hardly have been "Plato's own creation," as he terms it. The key to the significance of the Platonic Socrates, indeed, can to a large extent be discovered from an examination of his position in this very dialogue, and to this question I now turn.

In the Earliest Dialogues Plato Preserves a Picture of Socrates

We do not know that the Apology was the first of Plato's extant dialogues to have been written; indeed, Hackforth[1] fairly conclusively shows that it was not composed before 394 and may have been written at any time down to 387 B.C. But it is logically the first of the dialogues on the assumption that Plato began to write these compositions only after the death of Socrates, since that event must have impressed him strongly, and I base my interpretation of Plato's intention in choosing Socrates as his protagonist on the assumption that the Apology was the first of his extant works. Now, on this assumption, if Plato intended merely to preserve an accurate record of the trial, and in general to write a sort of memoirs of Socrates in dramatic form, one would expect that this, the first and most serious, most tragic, of the series, should be as far as possible a literal transcript of the trial. Indeed that is what it is on the face of it. But a closer examination reveals a deeper motive. We cannot go into this here in any great detail, but one instance should suffice. In Xenophon's Defence, Socrates replies to the charge of disbelieving in the gods, that he often sacrificed openly at the public altars. But Plato makes no mention of Socrates' sacrificing at all, but represents Socrates as answering the charge by a piece of sophistry.- He extends the charge of disbelief in the State gods to cover outright atheism, and evasively argues that as he was known to have believed in a δαιμόνιον - his well-known Divine Voice or Sign - he must have believed in δαίμονες , the offspring of the gods, and so by implication must have believed in the gods themselves, their progenitors. Hence, in the Apology, Plato was not reproducing Socrates' actual speech in his own defence, but

1. The Composition of Plato's Apology 44-46.

was reconstructing it.[1] Similarly in the two dialogues most close-associated with the Apology. According to Schrempf,[2] whom I here follow, the purpose of the Euthyphro is primarily to give a picture of religious feelings at Athens: Plato shows up the Athenians that, while not taking religion seriously, they are nevertheless ready to make use of it as εἰδιάφολον - as a pretext to liquidate an opponent hated on other grounds. The Crito was written chiefly for the purpose of exonerating Socrates' friends from blame for his not having escaped from gaol, and the historicity of the picture of Socrates is tampered with by Plato basing his conduct, not on obedience to an Unwritten Divine Law as we should expect from a study of Xenophon's Memorabilia, but on the implications of the dictum that we must not return evil for evil, so that Plato could there correct the impression made by his Apology that Socrates was disloyal to the State.[3]

By writing these dialogues centring around the circumstances of Socrates' trial, the conclusion is that Plato began his works from a desire not so much of preserving a picture of his master's last days as of defending his good name.[4] Socrates' manner of sacrificing and his obedience to Unwritten Divine Laws were dicta of a controversial nature: beliefs on which his indictment was in fact based as something alien to the Athenian religious outlook. Plato suppresses these dicta, substitutes something harmless, and represents him as arraigned not for 'heresy' but on a pretext, the real motive being pure and simple hatred not of his religious innovations but of his embarrassing questions which showed up the wise as really ignorant. What we have, then, in the picture of the Platonic Socrates is a Socrates idealised, a Socrates purified from even the suspicion of 'heresy', a Socrates whose sayings were essentially if not literally preserved in situations where there was no possibility of offence, but whose words were replaced by Plato's own interpretation where controversial issues were raised. And just the same treatment is evident in the next set of dialogues, which belong together in subject and treatment if not in date of composition.

Characteristic of Socrates is his search for the definition, especially in ethical matters, and we have pictures of his search for the definition of four of the cardinal virtues in four of Plato's earliest dialogues: of piety in the Euthyphro, of courage in the Laches, of temperance in the Charmides, of justice in Republic I.[5]

1. Cp. Lewis Campbell, Encyclopedia Britannica XXI.813; Ritchie, Plato 54; Hackforth, op. cit. 87-8, 101-2, et *alibi*.
2. Sokrates 81-85. 3. Schrempf, Sokrates 93.
4. See Field, Plato and his Contemporaries 51-2; The Philosophy of Plato 16; and Classical Review XXIX.219.
5. Book I originally an early and separate dialogue: Classical Review III.29; Field, The Philosophy of Plato 67. Denied by Taylor, Plato the Man and his Work 264; cp. Classical Review X.82; and Classical Review XXIX.220.

But just as even in the Apology Plato took the liberty of somewhat modifying the words that Socrates uttered in public at his trial, in private in the Crito, so here too Plato allows himself some freedom, not so much by glozing over controversial dicta as by giving his own interpretation of Socrates' beliefs. For example, in the Lysis, whereas Socrates would have said that the condition for his famous Pregnancy of Soul was the friendship of two youths,[1] Plato brings this friendship into connection not with Pregnancy of Soul but with the Good, which even Burnet allows to have been Platonic, by postulating, in terms reminiscent of the Idea of the Good which he later expounded in the central books of the Republic, a First Principle of Friendship, the πρῶτον φίλον,[2] which is shown to be the Good inasmuch as it is that "on account of which things are."[3] But here the Good is not explicit but only hinted at - its elaboration is left over for treatment in the Symposium.

Hence, thus far Plato seems to have left us a fairly faithful depiction of Socrates, but with two exceptions, he tones down controversial or objectionable dicta in order to idealise the picture of his master, and he feels at liberty to interpret some of Socrates' teachings along the lines that his later dialogues show his mind was working. Socrates spoke of friendship and went no further - unless we are to take his ironical references to Pregnancy of the Soul more literally than most commentators are willing to do - but Plato feels the need for a more ultimate source of Friendship or Love, and makes Socrates mention this First Principle, which we know from his later works to have been the Idea of Good - Plato then tends to interpret along his own lines Socrates' apparently vain search for the definition, as well as to idealise his teachings.[4]

In his Middle Dialogues Plato Fathers his Philosophy on Socrates. The logical outcome of the tendency just noted has been admirably expressed by Field:[5] "As Plato went on writing he put more and more of his own ideas into his work until he had gone beyond anything that Socrates had thought of." But Plato would not feel that his Socrates was purely a lay figure; his thought was "an enlargement of the original and true Socraticism,"[6] since "If and when he realised he had gone beyond Socrates, he would still feel he was developing a hint dropped by Socrates or drawing out some view

1. Cp. Symposium 209BC. 2. Lysis 219CD. 3. Lysis 219DE.
4. Cp. Field, The Philosophy of Plato 16: "The purpose of the earlier dialogues was to carry on the work of Socrates by stimulating thought through the medium of discussion that he had used, and at the same time to defend his memory and justify his services to the world....From the very beginning it is Plato's thought which is presented, even if it runs very much on the lines suggested to him by Socrates. It would be very natural therefore that as Plato went on writing he should put more and more of the ideas that he had arrived at for himself into his work, until he had gone much beyond anything that Socrates ever thought of." 5. Op. cit. 16. 6. Robin, Platon 27.

expressed by him."[1] According to these commentators, then, Plato, who had begun writing dialogues in order to preserve the Socratic spirit and at the same time to defend his memory, but having by reason of his initial departure from the strict letter of historical truth in order to present Socrates' teachings, if not his character, in the most favourable light, and in order to interpret certain of his tenets in a way more satisfying to his own point of view, as set out above, Plato then carried the tendency of idealising and reinterpreting Socrates to its logical conclusion, viz. that in time he came to ascribe to his figure of Socrates not so much the true Socratic teachings as his own development from and construction upon Socrates' teachings; he drew out the implications of Socrates' beliefs, as they seemed to him; in fact he fathered his own philosophy on Socrates. This was the easier firstly because his philosophy was really a development of Socrates' and secondly because his dialogues were not intended to be metaphysical treatises, were not addressed to specialists in philosophy, but were semi-popular works,[2] were addressed to the ordinary educated public to stimulate thought.[3] Plato aimed at making his particular point in any one dialogue rather than at reducing his various utterances to consistency,[4] so that it was the easier for him to bring in his own contribution to any particular problem discussed in a Socratic dialogue casually and by way of the customary question and answer without causing a feeling of startling incongruity. These considerations by themselves perhaps might be a sufficient explanation of his acceptance of the dramatic propriety of ascribing to Socrates views which Socrates never held, but which in Plato's mind were the logical outcome, the development of the Socratic tenets from which they were elaborated by Plato. But this explanation has been, at least to my mind, firmly established by Frank's[5] demonstration that at about the time Plato wrote there was a literary tradition according to which writers of that time gave modern thoughts the appearance of ancient wisdom by ascribing them to some great name. Field[6] too notes this tendency in respect of the ascription of discoveries to Pythagoras in order to claim his authority, and Stenzel has made use of this line of thought with an innovation of his own.

Stenzel's thesis is that Plato ascribed the leading ideas of his own philosophy to Socrates indeed, but preserved the semblance of dramatic verisimilitude by demarcating such non-Socratic utterances which he put into Socrates' mouth by means of certain literary devices, "whereby Plato was able to expound his views within his conception of the framework provided by the personality of Socrates"[7]

1. Field, Plato and his contemporaries 53. 2. Tredennick in the Loeb edition of Aristotle's Metaphysics xxi.
3. Field, op. cit. 59, and Milhaud, Les Philosophes Géomètres de la Grèce 192. 4. Dickenson, Journal of Philology XX.132.
5. Plato und die sogenannten Pythagoreer 72, examples in 73-4 & 138.
6. Plato and his Contemporaries 177. 7. Plato's Method of Dialectic

Stenzel lists such artistic devices as Socrates appealing to a higher authority, such as that of Diotima in the Symposium, the priests in Meno, or the well-known Socratic doubt.[1] In another work[2] Stenzel works this out in greater detail, most of the references being to the non-Socratic nature of the doctrines of Reminiscence, the Good, and the fastening down of opinions by the αἴτιος λογισμός. Some of these devices have been recognised by other authorities, among whom we might instance Adam,[3] that the πολλάκις ἀκήκοας of Republic 505A make s it clear that the Good was already recognised as a tenet of the Platonic school, and Robin,[4] that the ascription of the doctrine of Love in the Symposium to Diotima is only a roundabout way of saying that it was an adaptation of Socraticism.

Not so much against this view in general as against the interpretation of some of these artistic devices in particular are such counter-interpretations as the following. As said above,[5] Burnet takes the doubt expressed by Socrates in such passages as Phaedo 63C as the well-known Socratic irony, and Shorey[6] explains the familiar belief of Crito 46B that "Plato is at liberty to refer to his permanent beliefs as familiar doctrine". So again ad Meno 86B,[7] that "SOCRATES' expression of doubt is a hint that the argument is not to be taken too literally - PLATO limits his dogmatic affirmations to a minimum." Like Burnet, Taylor[8] regards the unknowability of the Good in Republic 509A as meaning no more than that Socrates cannot give an account of it. But if we examine this statement, since Taylor admits that the philosopher-kings are expected to know it, we are drawn to the conclusion that this corroborates Stenzel's view, since how could Socrates tell as much as he does about the Good if he knew nothing of it. Surely if the philosopher-kings knew it, so did Plato, and hence the ignorance of Socrates about that which he nevertheless expounds is precisely a device to distinguish what Plato knew but what Socrates did not. But the strength of the interpretation that I have here adopted lies not in isolated instances, but in the coincidence between what are generally accepted to be Platonic doctrines and some such literary devices as those mentioned above being used to demarcate these doctrines as non-Socratic. To a closer examination of this we now turn.

Plato, then, in his middle group of dialogues retained Socrates as the protagonist although he now departed so much from the canon of dramatic verisimilitude as to put into Socrates' mouth his own teachings, because he rightly felt that his philosophy was a

1. loc. cit. 2. Paulys Realencyclopädie II.iii.866-880.
3. The Republic of Plato Vol.II.50 ad 505A. 4. Greek Thought 186.
5. Page 180. 6. What Plato Said 468 note ad Crito 46B.
7. Op. cit. 515 note ad Meno 86B. 8. The Parmenides of Plato 156.

construction on Socrates'. But these too blatantly non-Socratic teachings are demarcated as non-Socratic by some artistic device showing that here we have not Socrates' but Plato's own thoughts. It is not my intention here to give a full list of such devices or a complete inventory of the tenets so demarcated, but for the sake of making the point, I shall give some of the most noticeable of such instances. It will be noticed that in all these cases the doctrines which Socrates dreams about, that he prophesies, which he cannot tell, which he doubts, that he offers as a charm, that he accepts simply as an hypothesis, or that is stated as the doctrine of others, or even what he is said to be always talking about, all these are generally accepted as Platonic and rarely regarded as Socratic tenets by modern commentators. This coincidence is surely too close to be taken merely as due to the picturesqueness of Socrates' way of speaking, to be due to what is sometimes termed the Socratic irony. And while it might be argued, by the opposite school of thought, that it is Plato who doubts when Socrates doubts, it can hardly be maintained that Plato also dreams these doctrines!

a) The Good. We have already cited Lysis 219CD as anticipating Plato's own Idea of the Good under the guise of the First Principle of Friendship.[1] Now the point of departure for this tenet is that "What is neither good nor evil is the friend of the Good," and this is put forward by Socrates as a PROPHECY,[2] and referred back to as a DREAM.[3] This, we said, was an anticipation of the Good, worked out in the Symposium. There this doctrine is put into the mouth of DIOTIMA, where the Good is presented as the object of Love,[4] and the more developed construction of this Love into the Ascent to Beauty is given as a Higher Mystery which Diotima DOUBTS WHETHER SOCRATES IS CAPABLE OF FOLLOWING.[5] This is further elaborated and brought into connection with a more general principle of Divine Madness, which is expounded in Socrates' 'Palinode' which he attributes to the INSPIRATION OF STESICHORUS,[6] and to which he refers back as a product of 'enthusiasm' attributable to the ACHELOAN NYMPHS AND TO PAN.[7] Even in the Republic, where we have a more prosaic account of the Idea of the Good, Socrates confesses his IGNORANCE of its nature,[8] and also, rather inconsistently, refers to it as one of his FAMILIAR BELIEFS.[9]

b) The Ideas. The demonstration of the necessary existence of objects of knowledge as entities out of Flux is given in the Cratylus as what Socrates has DREAMED,[10] and afterwards he DOUBTS the validity of his proof.[11] The Ideas are next mentioned in the Phaedo as what Socrates is ALWAYS REPEATING,[12] and later[13] are

1. Page 183. 2. Lysis 216D. 3. Lysis 218C.
4. Symposium 205E-6A. 5. Symposium 209E-210A.
6. Phaedrus 244A. 7. Phaedrus 263D. 8. Republic 506C.
9. Republic 505A. 10. Cratylus 439C. 11. Cratylus 440D.
12. Phaedo 76D. 13. Phaedo 100B.

assumed as an HYPOTHESIS.

c) Reminiscence. Where it is first mentioned, the doctrine of Reminiscence is introduced as that OF MEN AND WOMEN wise in religious lore, as well as that OF PINDAR and other 'INSPIRED' poets,[1] and is referred back to as what Socrates REFUSES TO BE DOMGATIC ABOUT.[2] In the Phaedo, Reminiscence is what Socrates is accustomed FREQUENTLY TO EXPOUND,[3] although the Platonic Socrates has expounded it before only in the Meno when Cebes, the speaker ad loc., was not even present! The corollary, that learning is Reminiscence, is what Socrates CANNOT TELL, for it would be contradictory, he asserts,[4] for him to do so.

d) Immortality. The whole exposition of this doctrine in the Phaedo is called by Socrates[5] his Swan-song, rejoicing at the approach of death in PROPHETIC vein. NOR WILL HE ABSOLUTELY ASSERT that he will meet good men in Hades, as he would if the soul were assuredly immortal.[6] As for the proofs offered of the soul's immortality, Socrates urges Simmias to accept them only as the LIMIT TO WHICH MAN'S REASON CAN ATTAIN,[7] and more specifically, the proof of immortality arrived at by combining Antipodiasis with Reminiscence is regarded only as a CHARM against the fear of death, and when Socrates is dead his followers must seek among themselves to supply other such charms.[8]

One last point that has become clear, and which indeed follows from the general interpretation of the significance of the figure of Socrates as protagonist in these dialogues, is that the amount of Platonism increases and that of strict verisimilitude to the picture of Socrates decreases roughly in proportion as the date of composition of the dialogues is removed in time from the life of their central figure. So, except for the first book which we said was doubtless of earlier date than the rest of the work, one of the latest dialogues of this group, the Republic, is virtually an exposition of Plato's own politics, system of education, Idea of the Good, and proof of Immortality, with his own grounds for the necessity of leading the life of virtue, with little indeed of purely Socratic traits.[9]

Now it is noteworthy that many of these doctrines are introduced by the way. This is especially noticeable in the case of the Ideas and Reminiscence. Thus, the Phaedo, in which we obtain perhaps the clearest statement of Plato's Theory of Knowledge as the Reminiscence of Ideas, was not written to present this theory but to give an otherwise faithful and vivid picture of Socrates' death in prison:

1. Meno 81AB. 2. Meno 86BC. 3. Phaedo 72E. 4. Meno 81E-2A,
5. Phaedo 84E-5B. 6. Phaedo 63C. 7. Phaedo 107B. 8. Phaedo 78A.
9. Cp. Field, Classical Review XLVIII.18: "If there was a change from a more Socratic to a more Platonic point of view, such a change would be gradual and continuous. Therefore, any line would have to be drawn chronologically."

The philosophy comes in only incidentally to the leading motif: the demonstration of the immortality of the soul, which was a fitting subject for discussion, although not necessarily that actually discussed, at the death of this great religious teacher, for it is given as his 'swan-song'. So the Meno is for the most part a typically Socratic investigation into the nature of virtue. In the course of the investigation the question arises, How is learning possible? This question, which is ostensibly a digression, becomes the most significant contribution of Plato's to the work - a digression of epistemology in the midst of an ethical discussion - for it is answered by a doctrine quite foreign to Socrates, Plato's doctrine of Reminiscence. Again in the Cratylus the main subject is an investigation into what might be called etymology, which raises as a side issue the question whether Heraclitean Flux or Eleatic Rest is the correct interpretation of things. It is almost as a digression that a proof is given[1] of the necessity of the fixity of the object of knowledge in a world of Flux, if knowledge is to be possible. Hence, we may say, the dialogues are first and foremost dramatic representations of the method and teachings of Socrates, but in the course of the conversations Plato introduces, often as digressions, fragments of his own philosophy put into the mouth of Socrates, but demarcated by artistic devices, because he regarded such tenets as developments of Socratic beliefs or sayings, and as such they could be inserted, especially with the safeguards aforementioned, without too violently violating the canon of dramatic verisimilitude. But such Platonic 'asides' were not meant to be expositions, much less systematic expositions of his philosophy; they can nevertheless be used as evidence for his beliefs. So we have the evidence of Diogenes Laertius III.52[2] that Plato expressed his own views through Socrates, Timaeus, and the Eleatic and Athenian Stranger.

Plato's Later Dialogues. Phaedrus 276D, etc. Burnet[3] cites Epistle ii.314C, that we shall find no writings of Plato but only of a rejuvenated Socrates, to support his interpretation of the Socrates of the dialogues as a faithful rendering of the historical Socrates, and corroborates this by pointing to Phaedrus 275Dff, which is rather long to quote here but we can quote the most telling passage, 276D: "In the garden of letters he will sow and plant, but only for the sake of recreation and amusement; he will write them down as memorials to be treasured against the forgetfulness of old age, by himself, or by any other old man who is treading the same path..." Shorey[4] rejects as wrong Burnet's interpretation of the passage that no Platonic truth could be put into writing. Taken as they stand, the words seem to mean that Socrates regards written

1. Cratylus 439E-440B. 2. Quoted by Field, Classical Quarterly XIX.12. 3. Greek Philosophy 212-214.
4. What Plato Said 554 ad Phaedrus 275Dff.

compositions only as a pastime with value only as a mnemonic, something to stimulate the memory of what had been learnt by oral teaching. But the passage as a whole is so critical of the written word, and is for us so reminiscent of Plato's Epistle vii.341C-E, which denies that Plato would ever have put any serious metaphysical truths into writing, that it is usual for modern commentators to take the sentiments as Plato's own. In this case, they would refer to his dialogues, and the impression given is that Plato dismisses them as of no serious value as a source of his philosophy. Some critics take this to apply only to dialogues already written. Thus, Stenzel[1] takes these remarks as showing that Plato felt at the time of writing that he was then leaving behind the problems of the Socratic dialogues and so had lost the motive for Mimesis, and may have felt that he would give up writing and devote himself to teaching in the Academy. Other critics interpret the remarks as applying to Plato's dialogues subsequent to the Phaedrus. Thus, Robin[2], that when Plato writes in the future it will simply be to preserve the true researches and debates of the school, or to pique the curiosity of the public, not to satisfy it about his teachings. But Field[3] points out that although Plato may have taken his writings less seriously than we do and allowed himself the latitude of tentatively putting forward ideas to which he would not have wished to be finally committed, his discussions nevertheless imply a general philosophical position from which the various questions are approached, Indeed, as Black[4] says, we are not left with parerga even if Plato says so: there are in fact special reasons in each case for Plato's uncomplimentary remarks about writing. He explains Epistle vii that Plato is there disowning an abridgement of his philosophy written by Dionysius, Plato denying, with particular reference to this, that his philosophy could be expressed in a written work. Ross[5] points out that Epistle ii is spurious and is obviously an imitation of the relevant passage in Epistle vii, and in any case refers to Plato's not writing a prose treatise on his Theory of Ideas, which does not necessarily mean that he would have denied the value of his dialogues, so far as they went. We might notice further an interesting suggestion made by Post.[6] Isocrates in Antidosis 79-83 had belittled the activity of the compiler of laws, presumably referring to Plato's Laws; Epistle vii.344C, that no written work, whether in the form of laws or any other form, can be the most serious work of a serious man, simply makes light of Isocrates' thrust, and is not to be taken too seriously. It seems to me, then, that these passages which decry writing do not mean that Plato denied the value of his dialogues as evidence for his

1. Plato's Method of Dialectic 16 & 20-1. 2. Platon 13.
3. The Philosophy of Plato 13. 4. Classical Review N.S.1.87-8.
5. Plato's Theory of Ideas 157-9. 6. Classical Quarterly XXIV.115.

beliefs, and even if they did, this would not mean that they were in fact of no value.

Limitations of the Dialogue Form. Nevertheless it must be accepted that, as a source for Platonism, the dialogues, by reason of their very form, suffer from certain noteworthy limitations. The dialogues are conversations not metaphysical treatises, and as such were addressed to the general public rather than to specialists, so to speak,. His doctrines, at least in the dialogues so far discussed, are chiefly in evidence in digressions marked usually by some literary device, but there is no systematic or even consecutive exposition of Platonic doctrines. He approaches each problem afresh, and the dramatic element is there and has to be allowed for in the detailed interpretation of particular passages.[1] Hence, we must not expect to find in any dialogue Plato's last word, for the finality of any doctrine mentioned is limited for us by the uncertainty how far Plato felt himself restricted by the limits of such dramatic propriety as chronological considerations and compatibility with the character of the person in whose mouth it is put. For example, in Phaedo 105DE we encounter what might be taken to be Ideas of Injustice as well as of Justice. Socrates did not hold Ideas at all: these are Platonic, but does that mean that Plato held such negative Ideas? Not necessarily so; for Socrates made definitions of both Justice and Injustice, and when Plato made the objects of these definitions Ideas, and put Ideas into the mouth of Socrates, it is in deference to this, no doubt, that Plato makes Socrates talk of Ideas of Injustice as well as of Justice - Socrates spoke of definitions not of Ideas, but his definitions were equally of Justice and of Injustice. Such cases must be treated each on its own merits, and this subject will come up for discussion later. Here we shall say simply that so far as the dialogues are concerned which have already been discussed, chiefly what has been called the Middle Group, we may expect to find Plato's own thoughts, especially where demarcated as non-Socratic by various artistic devices, but any such case is open to the possibility of distortion in order to fit in with the character of the speaker and the chronological setting of the conversation in question.

So far as concerns the later dialogues, I follow Field[2], that as Plato retained the form of the dialogue he could not have entirely changed his intention in the use of dialogue at any particular point; but,[3] where he did change the form as in Timaeus and Laws, it was because he felt the subject inappropriate to the Socratic method. Here the choice of another chief character was due to his feeling that on the questions there discussed his thought had been especially influenced from some other direction than that

1. Field, The Philosophy of Plato 11. 2. Plato and his Contemporaries 51.
3. Op. cit. 53.

of Socrates. The primary problem in these later dialogues is to determine Plato's reasons for the choice of his chief character, and to allow for the amount and direction of the dramatic distortion of his views by these characters, as touched on above. I shall discuss the later dialogues in turn, beginning with those which retain Socrates as the protagonist, and dealing again with the Phaedrus, but more particularly with those passages which belong to his later period, as pointed out on page 179 above.

Phaedrus. The Phaedrus is chiefly concerned with the doctrine of Divine Madness, being an elaboration of the ideas set forth in the Symposium, but extended in their application to include an interpretation of the meaning of life in terms of Transmigration, with the possibility of release from the cycle of rebirth for the philosopher. It constitutes, then, the culmination of the earlier Platonism, and as such it has been sufficiently dealt with above. Naturally enough Socrates appears as the leading speaker, but in view of the transcendance of the philosophy here expounded he speaks not in his own name but as one inspired, just as in the Symposium the analogous doctrine of Love was related as the discourse course of Diotima. But there are two passages[1] where quite different doctrines are presented from those of this earlier Platonism, of which Socrates is the natural exponent. In that earlier philosophy Dialectics was for Plato the Method of Hypothesis of Republic 510B, 511B. But in Phaedrus 265E-6B we find a quite different process, given as the complement of the normal 'Socratic' process of 265D of comprehending scattered particulars in one Idea. This is the new method of Diaeresis or Division, which plays so great a part in the Sophist and Politicus: "The second principle is that of division into species according to the natural formation, where the joint is, not breaking any part as a bad carver might... . I am myself a great lover of these processes of Division and Generalisation; they help me to speak and to think. And if I find any man who is able to see a 'One and Many' in Nature, I follow him and "walk in his footsteps as if he were a god". And those who have this art, I have hitherto been in the habit of calling DIALECTICIANS; but GOD KNOWS WHETHER THE NAME IS RIGHT OR NOT". The words capitalised show that this is not the sort of sentiment that is rightly to be ascribed to Socrates. This is the transition to the later method of Division and is thus demarcated as non-Socratic. And as stated before, this process, although called Dialectics, is something quite different from the Dialectics of the earlier dialogues. Here, then, is the bridge between the earlier and the later Platonic periods. Further, the passage quoted is part of a digression into rhetoric, and the novelty of this subject in the mouth of Socrates is marked at the beginning of the digression by the literary device

1. Cp. page 179 above.

of attributing the whole digression to the INSPIRATION of the grass hoppers:"This piece of good fortune I attribute to the local divine deities; and perhaps the prophets of the Muses who are singing over our heads may have imparted their inspiration to me. For I do not imagine that I have any rhetorical art of my own."[1]

The second novelty is a new conception of the soul as the self-mover, which occurs again in the Politicus and is elaborated into a whole system in Laws X. We need not go in any detail into this, since the doctrine of the soul lies aside from our course. The soul as self-mover, however, occurs in a passage which offers a proof of the soul's immortality,[2] and introduces the description of the Supracelestial Plain and the Procession of the Gods, which is necessary in order to understand not merely the doctrine of Divine Madness, but the entire interpretation of existence as bound up with the Vision of the Ideas and the Winged Soul. This entire 'Palinode' is attributed by Socrates to STESICHORUS,[3] in fun no doubt, and referred back to as due to the INSPIRATION of the Nymphs of ∅ Achelous and Pan, the son of Hermes.[4]

Theaetetus. One can easily understand that it was fitting for Socrates to be the chief speaker in the Phaedrus, since although the new ideas of Division and of the self-mover which belong to Plato's later period appear there, the leading ideas of the dialogue were still in the tradition of the earlier Platonism, which had been developed from Socraticism and had been put into the mouth of Socrates in all the dialogues so far treated. But now that Plato leaves the earlier Theory of Ideas behind, one might well wonder why Socrates is made the chief speaker in the Theaetetus. The answer must be that this dialogue does not at all mention the Ideas, at least not explicitly, but is ostensibly an attempt to define knowledge along the usual Socratic lines. It is in parts curiously like the more Platonic parts of the Cratylus, where the necessity for Ideas is deduced from the need for having fixed objects of knowledge in a world of Flux, whereas in the Theaetetus knowledge is shown not to lie in the senses since all things flow. Thus, it would seem that here Plato is reconsidering his doctrine of Ideas as a theory of knowledge[5] preliminary to working out his later theory. As he has not abandoned the Socratic universal as the object of knowledge, Socrates retains his old seat of honour. And yet, while Socrates throughout displays no knowledge of the Ideas, expounds little that is glaringly non-Socratic,[6] the whole subject

1. Phaedrus 262D. 2. Phaedrus 245C-E. 3. Phaedrus 244A.
4. Phaedrus 263D. 5. This is the interpretation adopted by Jackson, Journal of Philology XIII.266; Cornford, Plato's Theory of Knowledge 28; Ross, Plato's Theory of Ideas 101.
6. Except for the theory of 'Letters and Syllables', and this is what Socrates DREAMS, Theaetetus 201D, 202C.

is hardly a Socratic one; and yet Plato probably keeps Socrates as the protagonist because of the analogous position occupied by this dialogue to the relevant part of the Cratylus, as just stated. Nevertheless, Plato still draws the line: because here Socrates has played out the part of master and has become one of many predecessors,[1] Plato puts the dialogue in a setting 30 years after Socrates' death (the immediate occasion being an In Memoriam for Theaetetus) and for these last 30 years Terpsion has been meaning to ask Euclides, who had written down the conversation at the time from memory, about this meeting between Socrates and Theaetetus, but had missed his chance until now![2] Further, a large place is given to Socrates' Midwifery[3] which, apparently unconnected with the rest of the dialogue, has yet this significance: "But do you not see that in xxxx reality none of these theories come from me; they all come from him who talks with me."[4]

Philebus: A third later dialogue in which Socrates keeps his seat of honour is the Philebus, which was probably written by Plato as his contribution to the Academic controversy with Eudoxus.[5] As the whole subject of this dialogue is ethical - the nature of the Good Life, whether Pleasure or Knowledge is its chief constituent - Plato evidently feels it appropriate to return Socrates to the chair so to speak, after his eclipse in the Parmenides, Sophist and Politicus.[6] But as our concern lies with metaphysics and not with ethics, the only relevance this dialogue has for us will be found in the two passages on the Limit and Unlimited, and the Fourfold Classification of Being. Now it is noteworthy that this discussion, for the two passages are closely related, is introduced as A GIFT FROM PROMETHEUS, which shows that the whole doctrine is Plato's and not Socrates'.

Now it is important for the interpretation of the Parmenides to form a conclusion concerning Socrates' rôle in this later period. In the three dialogues last discussed, there is no essential change in the position of Socrates as chief speaker: except for a passing reference to the new Method of Division, which is there called Dialectics as if it were that same Dialectics expounded by Socrates in the Republic and hinted at in Phaedo 101DE, and the soul as xxxxxx self-mover, what Socrates expounds in the Phaedrus is the earlier Platonic Theory of Ideas, the earlier Tripartite and Transmigratory Soul, not essentially different from the Phaedo, Republic and

1. Schrempf, Sokrates 164. 2. Theaetetus 142C-3A.
3. Theaetetus 148E-151C. 4. Theaetetus 161B.
5. See Burnet, Greek Philosophy 324; Cornford, Cambridge Ancient History VI.ix.IV.331; Field, Plato and his Contemporaries 40; Frank, Plato und die sogenannten Pythagoreer 130 with note 379; Jaeger, Aristotle 16-17; Robin, Platon 43; Taylor, Plato the Man and his Work 409-410. 6. So Stenzel, Plato's Method of Dialectic 15.

Symposium, but more developed; in the Theaetetus Socrates does not explicitly mention Ideas at all, but discusses the same sort of problem as in parts of the Cratylus; and in the Philebus we have Socrates in his own proper rôle of ethical teacher. Hence, in these later dialogues, Socrates does not appear in a rôle essentially different from that of the earlier dialogues, where he was the mouthpiece of Plato's Earlier Theory of Ideas.

Parmenides. But in the Parmenides Socrates appears as the deuteragonist. As that rôle is virtually confined to giving an exposition of the Ideas as they appeared in the Phaedo, etc., Socrates' position as deuteragonist is obviously in keeping with his earlier rôle as protagonist and does not materially depart from his position in the three later dialogues dealt with above. Previously he was the mouthpiece for the expression of Plato's Earlier Theory of Ideas; he still expresses that same Theory, but now it is under criticism, and Socrates must play second fiddle. Not only does this interpretation seem to be the most simple and natural, but it fits in with the significance of the dialogue form for Plato as dealt with above, and must of necessity rebut such interpretations of Socrates' rôle here as that of Stewart,[1] that Socrates here represents the typical young student of the Academy who misunderstood Plato's doctrine in exactly the same way as, so he alleges, Aristotle did afterwards. If Plato's choice here of Socrates as deuteragonist has any meaning at all, that meaning can only be that he is used to expound that Earlier Theory of Ideas which he had previously expounded in the Phaedo and Republic. Whether the criticism is Plato's own or someone else's, whether Plato means the criticism or not - this question will be discussed later - it is Plato's own Earlier Theory of Ideas that is criticised, as witness the position of Socrates.

But why is Parmenides the protagonist? Parmenides plays a two-fold rôle in this dialogue: he is the ostensible author of the criticism of the Ideas[2] just referred to, and is the exponent of the 'dialectical exercise'[2] which follows that criticism. Any interpretation of his rôle must take both these facts into consideration, and interpret him in the same way in both rôles. This raises a very difficult problem, and before turning to it we note the literary device by which Plato marks the unhistorical nature of the meeting between Parmenides and Socrates.[3] The dialogue is given at fourth hand. Cephalus has come to Athens to hear from Antiphon, Plato's half-brother, an account of a meeting between Socrates and Parmenides which he had got in his youth from Pythodorus, who in turn had apparently learnt the details from Zeno. So Parmenides 126BC.

1. Plato's Doctrine of Ideas 70-72.
2. This will be referred to as Parmenides I and II respectively.
3. Cornford, Plato and Parmenides 64, Plato's Theory of Knowledge 1; cp. Lewis Campbell, Classical Review X.135; Jackson, Journal of Philology XV.300-1; and Robin, Greek Thought 84.

To return to the question of the significance of Parmenides as protagonist, it will be useful to review the chief interpretations of the Parmenides along general lines given by modern commentators. Such views fall into several well-defined groups.

1. The Transcendental View. Plotinus[1] claimed to find his own One, Nous or One-Many, and Soul or One and Many, in the first/ and second hypotheses and the Appendix to the second respectively. But he was wrong in separating this Appendix (155Eff) from the second hypothesis,[2] since both arguments refer to the same One.[3] Perhaps for this reason Proclus took the first hypothesis to refer to the Good and the second to the unity of the object of science or opinion.[4] To this school of thought belongs Dodds,[5] who sees in hypothesis i a "lucid exposition of the famous negative theology, and a derivation of the universe from the marriage of unity and existence in hypotheses ii and iv." But I feel that this view is quite erroneous since 142A makes it clear that the first hypothesis is a reductio ad absurdum and so quite unacceptable, and since the other hypotheses fail to fit in with this explanation.[6] Hardie[7] finds much to be said for the view, but an examination of his arguments reveals no real support for the view that the above-mentioned hypotheses expound a negative and a positive metaphysics, but only that Plato identified the Good with the One and that this highest reality was beyond adequate expression, which is a very different matter. In fact, he does not really prove the ineffability of the One at all, for his references are either to spurious Epistles - Epistle ii.312E and vi.323D - or to Timaeus 28C, which refers to the ineffability of the Creator, not of the One. I conclude, then, that any interpretation of the Parmenides must explain all the hypotheses and not merely two or three of them, and must accept the first as a reductio ad absurdum.

2. The Logical Exercise View. A second group of interpretations meets the criteria referred to by considering the whole of eight hypotheses as a logical exercise in view of Parmenides' statements in 135CD and 136A-C to this effect. Three commentators have adopted this interpretation: Grote, Shorey, and Ross. According to Shorey,[8] the Trope of the Parmenides is a conscious exercise in logic, exhibiting the fallacies arising from the confusion of the copula with the existential verb 'to be'. The resultant antinomies are not seriously meant - it is just a laborious game. Further, to support the lack of serious purpose in this Trope, Shorey dismisses the criticism of the first part of the dialogue by saying that the

1. Quoted and criticised by Taylor, The Parmenides of Plato 146-58.
2. Hardie, A Study in Plato 129. 3. Taylor, op. cit. 157.
4. Hardie, op. cit. 113-4. 5. Classical Quarterly XXII.133-4.
6. Hardie, op. cit. 115; Taylor, op. cit. 152-8; Ross, Plato's Theory of Ideas 96-8. 7. Op. cit. 117-130.
8. What Plato Said 289-291.

introduction to the Philebus shows that Plato was not disturbed by the objections to his theory, so that he rejects the prevailing view that the Parmenides marks a crisis in Plato's thought. But the Philebus was written something like ten or fifteen years after the Parmenides and so is no evidence that AT THE TIME OF WRITING THE PARMENIDES Plato was not disturbed by these objections. Ross[1] must command our respect in any view which he supports, and he has said in effect that "As Plato did not answer Parmenides' arguments against the Ideas and continued to hold them, he plainly did not think them fatal. As Plato did not indicate that he preferred the indiscriminate assertion of such hypotheses as the second to the indiscriminate denial of the first, the inculcation of doctrine was not the main purpose of the Parmenides. It is a logical exercise, concerned not so much with the Ideas as with Parmenides' One, and it is a mistake to trace grains of positive teaching in the wilderness of paradox." But I think Ross fails to draw a distinction. Plato may have continued to hold the Ideas, indeed, and yet have made modifications in their conception. I cannot understand how Ross can say that Plato here maintains a position of impartiality between the arguments, since, as mentioned above, he plainly states at 142A that the indiscriminate denial of hypothesis i is absurd - surely, then, he must accept the indiscriminate assertion of hypothesis ii! This point can be demonstrated by quoting Plato ad loc.,142A: "The One can neither be named nor spoken nor opined nor known nor can any of its manifestations be perceived...Is it possible for the matter to be in such wise concerning the One?-It does not seem so to me." With this, contrast the conclusion of the second hypothesis, 155D: "There would be something for the One and of it, and it was and is and will be....And there would be knowledge of it and opinion and perception if we acted so in respect of it." It is my opinion, then, that Plato must have had, and indicated, some answer to Parmenides' criticisms in the first part of the dialogue, and that in the Trope the positive hypotheses must receive preferential treatment over the negative. These two criteria have been put forward in different words by Bury[2] and Chen.[3] The former says against this Exercise Theory that it is unlikely that Plato would produce a work that had no serious purpose - in other words, some attitude must be supposed on Plato's part towards the criticism of the first part of the Parmenides, and this attitude must be reflected in the Trope, the second part. The latter says that this view overlooks the factual content of the hypotheses - that hypotheses i,iv,vi and viii, for example, agree in indiscriminate denial, which 142A rejects, and that ii,iii,v and vii agree in indiscriminate assertion, which is consistent with knowledge, opinion and perception.

1. Plato's Theory of Ideas 99-101. 2. Journal of Philology XXIII. 178. 3. Classical Quarterly XXXVIII.101.

3. The Eristic View. Attempts have been made to meet these requirements in part, that is, by taking the Trope in close connection with Parmenides' criticism - this is called the Eristic View. Thus, Apelt[1] takes the criticism of Parmenides I as Megarian and Parmenides II as a parody of Megarian arguments. So also Burnet[2] that since the Third Man argument in Parmenides I was introduced by Polyxenus, a pupil of Bryson the Megarian, the criticisms of the Ideas are Megarian, and Parmenides II was intended to disprove the Megarian philosophy, making use of certain sophisms deliberately because the Megarians were eristics. Much to the same effect is Taylor[3] and Robin.[4] But Taylor in an earlier work[5] anticipated the very criticism urged in later days against this interpretation by Cornford[6] and Ross[7] in saying that "A tu quoque would be lame since to discredit the Megarian One is not to rehabilitate the Ideas, and how can 'Parmenides' criticise Plato from the Megarian point of view in Parmenides I and then criticise the Megarians themselves in Parmenides II?" In other words, this interpretation fails to explain the significance of Parmenides as the protagonist.

I include several other versions here, although not eristic in the strict sense of the word, because they too turn on the interpretation of Parmenides II as a tu quoque of some sort of Parmenides I. So Stewart,[8] who takes the doctrine criticised as Plato's own as it was misunderstood by others, so that 'Socrates' represents a pupil of the Academy who took the Ideas exactly as Aristotle did afterwards, as he alleges. The foundation of these Ideas was Eleatic Being, and after giving his objections to the misconception of the Ideas by the Academy, Plato in the Trope proceeds to criticise the Eleatic setting up of the One. This has two defects: it assigns to Socrates a rôle incompatible with his usual position in the dialogues,[9] and it does not make it clear how an attack on the Eleatic Being affects a misconception of the Ideas. For if the Academy wrongly interpreted the Ideas, surely it was irrelevant to a correction of that misconception whether the Being with which they were wrongly identified was itself incorrectly or correctly ~~xxxxxxxx~~ conceived. Bury[10] sees in the Parmenides a reassertion of the Ideal Theory in the face of the young Aristotle's criticism, apparently on the grounds that many of the criticisms reappear in his Metaphysics. But on the one hand, Aristotle was surely too young to have been thus honoured,[11] if indeed he had already entered the Academy, which is doubtful, and on the other, Aristotle might well have made use of the criticisms in the Parmenides[12] without

1. Classical Review VI.321 and Journal of Philology XXIII.168.
2. Greek Philosophy 254 & 263. 3. Plato the Man and his Work 350 & 361. 4. Platon 127-9. 5. Mind V.317-8.
6. Plato and Parmenides 106-7. 7. Plato's Theory of Ideas 95-6.
8. Plato's Doctrine of Ideas 70-72. 9. See page 194 above.
10. Journal of Philology XXIII.191 & 176. Cp. Ritchie, Plato 119-122.
11. Jaeger, Aristotle 16. 12. So Ross, Aristotle's Met. II.212.

acknowledgement - why not? Cherniss[1] seems to belong to this type of interpretation when he says that the "Parmenides criticises the immanence of the Ideas in sensibles held by Eudoxus," but this I do not understand, since whether or not the participation of sensibles in Ideas there criticised can be taken to denote immanence, it is obvious that 'Socrates' defines the Ideas as separate, that the relation of Patterning there criticised requires transcendent Ideas, and that the arguments concerning the lack of relationship between Ideas and things, and the unknowability of the Ideas, rest on the assumption of two worlds.

A good transition to the point of view that alone of all we have reviewed takes proper cognisance of the relation between parts I and II and of Parmenides' rôle, is afforded by Hardie's criticism[2] of the Eristic view: The introduction to the Parmenides, he says, namely 136B-7A, and the back-reference in Theaetetus 183E to Parmenides' "noble depth", show that the Trope is meant to be metaphysically significant. The criticism of the Ideas implies a defect in 'Socrates', not in the alleged critics (Megarians), and Socrates' helplessness before the attack means not that the difficulties are fallacies, but that Socrates could escape them if he was more dialectical. The length of the first two hypotheses shows that they are meant to elucidate the problem. In other words, the correct line of interpretation is to forget Bryson and the provenance of the criticisms of Parmenides I, and to concentrate on the possibility that Parmenides here acts as Plato's mouthpiece for a revised Ideal Theory as Socrates acted for the original Theory.

4. The Idealist Interpretation. The general line taken by those critics who subscribe to the varieties of the Idealist Interpretation is well put by Taylor:[3] As Socrates in Parmenides I is reduced to hopeless perplexity, the problem is to find in Parmenides II the solution of the difficulties. Taylor[4] had first held this view blended in with a form of the Eristic, but he subsequently abandoned it. He said, however, that the Socratic Theory in Parmenides 129 was Megarian and thought it singularly apposite that Parmenides the Eleatic should refute the Megarianism represented by Socrates. We have, I think, sufficiently argued that it is incompatible with the rôle of Socrates as Plato's mouthpiece to expound anything else than Plato's Earlier Theory of Ideas, but Taylor is correct when he adds that hypotheses i and iv show that the Megarian principle is untenable, and the solution to the difficulties raised in Parmenides I are solved by hypotheses ii, iii, v and vi.

This solution given by Taylor is found also in Tocco's[5] interpretation: multiplicity is introduced by these hypotheses into the Ideal Sphere from which it was at first excluded, and this is

1. The Riddle of the Early Academy 79. 2. A Study in Plato 99-101.
3. Mind V.301. 4. Mind VI.36-8. 5. Journal of Philology XXIII.165.

developed analytically in the Sophist, indirectly demonstrated in hypotheses i and iv of the Parmenides by reductio ad absurdum, and applied to Ethics in the Philebus. Objections have been raised to this line of interpretation by Hardie and Ross. Ross[1] objects that the refutation of Monism in the Trope does not suit Parmenides as the speaker, but Ross himself supplies the retort to this objection, as will be shown presently. Further, the indiscriminate assertion of hypothesis ii is no more satisfactory than the indiscriminate negation of i. I have already dealt with this objection on page 196 above. Finally, the conclusion, 166C, treats all arguments as forming a single argument. Cornford[2] has given an explanation of the appearance of fallacy here by pointing out that Plato deliberately couched the argument in the form of Eleatic dialectic, no doubt to preserve some sort of dramatic verisimilitude in the choice of Parmenides as protagonist. These objections Ross has borrowed from Hardie,[3] who had posed the crucial question, "How can an attack on Eleaticism be put into the mouth of Parmenides?" This seems to me to be the only serious difficulty, and the solution has been offered by Ross himself:[4] "While Parmenides is a Monist, he is not here treated as such, but is chosen as the mouthpiece of Plato's reflections because they were too far removed from Socrates' way of thinking to be put into his mouth, and because he represented the objective wisdom of age. He says that the Theory is fundamentally true but has been proclaimed without regard to precision of thought. Parmenides II affords an example of such precision." This view has been to some extent anticipated by Bury,[5] who said:"I conclude that this (the Trope) is a polemic against Megarian Monism, put into the mouth of Parmenides as an ad hominem, and indicating that true Eleaticism is inconsistent with Absolute Monism." I would rather say, however, that this is a polemic against Eleatic Monism, indicating that Plato's version of what he felt to be the true Eleaticism is inconsistent with the absolute Monism maintained by the historical Parmenides. This I shall elaborate presently, but first it will be as well to conclude this review by mentioning two others along these lines, but unique in their interpretation of Platonism.

Wild[6] takes Parmenides II as Plato's correction of the oversimple ontology expounded by Socrates in Parmenides I, which represented his own earlier view. "It is inconceivable," says Wild, "that the very man who saw and stated these objections so clearly could have gone on holding the very misconceptions he had so destructively criticised." The new ontology is that there are four grades of reality: the Forms must exist imperfectly in things (hypotheses ii and iii), less perfectly in the marginal content of

1. Plato's Theory of Ideas 95. 2. Plato and Parmenides 114.
3. A Study in Plato 109. 4. Op. cit. 91. 5. Journal of Philology XXIII.181. 6. Plato's Theory of Man 209 & 217-9.

sense experience (hypothesis vii), purely and insubstantially as objects of the Understanding (hypothesis v), and have their source in the unique unity of Being itself (hypothesis i). Wild makes out a very interesting ontology, and one which might be squared with Plato's thought in the Simile of Light of the Republic and parts of the Sophist, but it is doubtful whether the hypotheses cited really reflect such an interpretation, and certainly it is difficult to accept the reductio ad absurdum of hypothesis i as expressing the highest grade of reality. Nevertheless, Wild correctly interprets the rôle of Parmenides: "It shows the master, Parmenides, learning to see in the dark instead of dismissing what is not perfectly real as delusion." If Plato could put his own philosophy into the mouth of Socrates because, although Socrates never held such doctrines as Reminiscence, Ideas, Transmigration, he felt that this philosophy was a development of the Socratic, as we argued above, surely it is quite consistent with this point of view that he should ascribe to Parmenides views which Parmenides indeed never held,[1] but which Plato felt were the logical development of his position. Plato shows Parmenides learning to see in the dark, as Wild so beautifully expresses it.

A last interpretation is that of Liebrucks,[2] whose error lies in his placing the Parmenides subsequent to the Sophist. He interprets the Sophist as expounding a new ontology in which sensibles, Not-Being, are as real as the Ideas, Being, so that his earlier theory of two worlds collapses. That earlier dualism is expounded by Socrates in the Parmenides, criticised by Parmenides, who then proceeds to develop the new ontology of Relativity in the Trope.

From an examination of the above review I have reached this conclusion, that the Parmenides represents a crisis in Plato's thought. Whatever the source of the criticism in Parmenides I, this criticism was meant to demolish the Theory of Ideas put forward by Socrates.[3] This means that Plato realised that his Theory was still immature,[4] and we expect in Parmenides an indication towards reconstruction.[5] Parmenides is chosen as the author both of the criticism and of the foundations of this reconstruction because Plato wished to emphasise the part played by Eleatic influence in the transformation of his doctrine.[6] I believe this to be the true interpretation of the choice of Parmenides as protagonist both because it is in line with Plato's earlier choice of Socrates as his mouthpiece and because this interpretation of the rôle of

1. Cp. Field, Plato and his Contemporaries 191: "Parmenides can hardly have held all the opinions ascribed to him in the dialogue"
2. Platons Entwicklung zur Dialektik 156-9 & 168-172.
3. Classical Quarterly XXXI.71-73. 4. Campbell, The Theaetetus of Plato xxv. Cp. Mind V.316; Cambridge Ancient History VI.ix.IV. 326; Liebrucks, op. cit. 183. 5. Classical Review XX.273; cp. Classical Review LV.77; Journal of Philology XI.301; Robin, Platon 126-7. 6. Robin, Greek Thought 84, cp. Ritchie, o.c.124.

Parmenides is the obvious explanation of his later choice of the Eleatic Stranger as his chief speaker. We shall elaborate this last point now.

Sophist and Politicus. We have seen that the Phaedrus introduces a new meaning of the word Dialectics - the new Platonic Method of Division. This method is made much use of in the Sophist and the Politicus, which are thus demonstrably works exhibiting or illustrating Plato's new method. Now if in the Parmenides Plato had laid the foundation for his amended Theory of Idêas, it is reasonable to expect to find his new construction in these two dialogues, and one might even expect that Parmenides had been used as his mouthpiece for the foundation of this reconstruction, the reconstructed Theory itself, so far as it might appear in these later dialogues, would also be expounded by Parmenides. So Socrates was the exponent of the Earlier Theory, now Parmenides is expected to be the exponent of the Later Theory. But instead of Parmenides we find an Eleatic Stranger. True, he is an Eleatic like Parmenides, but why not the Master himself? For one thing, of course, Paremnides belonged to an anterior age: it is all very well for Plato to suppose that Socrates met Parmenides in his youth, but it would surely be monotonous for two other dialogues to follow the same pattern. Ross[1] as usual has supplied us with the answer: Plato feels that he is now the HEIR in some sense to the philosophy of Parmenides, but, repelled by his extreme Monism, he takes as his mouthpiece not Parmenides but the Stranger as the type of an ENLIGHTENED Eleatic. So Robin,[2] that by the substitution of Socrates by the Eleatic Stranger Plato suggests that he is giving the world a NEW Eleaticism. And again Burnet,[3] that his use of the Eleatic Stranger shows that Plato considered himself and not the Megarians as the TRUE DISCIPLE of Parmenides. Hence, because the Stranger expounds the Method of Division, he represents Plato himself; he is an Eleatic because Plato regarded himself as the true Eleatic - Parmenides' Eleaticism was too monistic, so to speak; Plato corrects the error and claims to hold a purer Eleaticism than Parmenides himself. But this interpretation can only be fully justified by an examination of the doctrines expounded in the above-mentioned dialogues, which still lies ahead of us.

Timaeus. One last dialogue remains to be considered - for the Critias is a fragment and the Laws deals with subjects irrelevant to this thesis. In the Timaeus the protagonist is an alleged Pythagorean, Timaeus of Locri. We cannot be sure that such a person ever existed at all,[4] but what here matters is not his historicity but his being the representative of some Pythagorean school or other. Now the Sophist and Politicus deal largely with logical questions,

1. Plato's Theory of Ideas 104. 2. Platon 138-9, cp.Greek Thought 213. 3. Greek Philosophy 237. 4. See above, page 173.

but the Timaeus is more especially concerned with the world of sense, and the generation of the visible universe. Hence, it seems to follow that whereas Plato derived the logical side of his new Theory from a reformed Eleaticism, the details of the sense world and its generation were influenced by some Pythagorean school. For if Timaeus of Locri was not an historical person, did not in fact exist except in Plato's imagination, since he is presented as a Pythagorean, Plato must thereby be acknowledging his debt to that philosophy.[1] It is, however, a possibility that Timaeus cloaks the identity of some person then living, whom custom forbade his naming.[2] But this question can rather be entered into more deeply in a later portion of this work.

But by saying that Plato, by choosing a Pythagorean as his mouthpiece, acknowledges Pythagorean influence, I do not mean that Plato is here reproducing Pythagorean science any more than the choice of Socrates in earlier dialogues meant that the Theory of Ideas there expounded was held by Socrates, only that Plato's source was Socratic. Taylor[3] takes the science in the Timaeus to be a sort of rescript of Pythagorean beliefs held by Pythagoreans living in Socrates' lieftime, since Socrates is present in the dialogue, at the same time contaminated with certain of his own views.[4] But it is sufficient refutation of this, unless one be a follower of the Burnet-Taylor tradition, that such an interpretation leads to the deduction, as Taylor[5] sees, that the absolute Ideas which appear in the Timaeus were Pythagorean and not Platonic. This has been pointed out by Cornford,[6] but is really quite obvious, and Shorey[7] has gone so far as to state that the hypothesis that in the Timaeus Plato is REPRODUCING Pythagorean science of the V. century is fanciful.

One other question remains to be discussed concerning the Timaeus, and that is the significance of its doctrines being termed a myth, a likely tale, μυθοειδώς. This reservation occurs in several places of which the most important is 28B-D:"About what is fixed and clear to the mind our account must be fixed and incontravertible, but the account of what is only an image (εἰκόνος) of the former can only be probable (εἰκότας)- what Being is to Becoming, so is Truth to Belief. So do not wonder if we are unable to render a wholly consistent and exact account. Yet if we give an account no less probable than that of other philosophers, it should be welcomed, considering that I the speaker and you the listeners

1. Ritchie, Plato 52:"The Timaeus gives Pythagorean doctrines, modified by Plato's own." Also op. cit. 127 and Ritter, The Essence of Plato's Philosophy 258. 2. Cp. Field, Plato and his Contemporaries 75-6 that Plato would not refer to a living person by name, but he admits Cebes, mentioned in Phaedo, was still alive.
3. Plato the Man and his Work 436 and A Commentary on Plato's Timaeus 31-3. 4. See Stocks' criticism, Classical Review XLIII.219-220. 5. A Commentary on Plato's Timaeus 335 ad 51B.
6. Plato's Cosmology 28 with note 1. 7. What Plato Said 612 note.

are only mortal, so that it behoves us to accept this likely tale or myth (τὸν εἰκότα μῦθον) concerning these things, and not look beyond it." Skemp[1] is probably correct in connecting εἰκὼς with εἰκών , and so in giving it the meaning of something more than 'probable'. Like the εἰκαστικὸν of Sophist 234Cff and 266D, which gives the true proportions of the original, it is a form of science So Ross,[2] while allowing that the expression means that we cannot look for certainty, interprets it to be an attempt at what Plato thought most likely true. Cornford[3] and Vlastos[4] have pointed out that the element of falsity lies not in the exposition but in the object described, and yet this does not mean that it is fanciful. As examples of the irreducible element of 'myth' Field[5] points to the account of Creation: this does not mean that Plato regarded Creation as an event in time because it is so presented - Plato has simply chosen this form of exposition in order to present the result of analysis in a form in which we can most easily grasp it. This doubtless is what Xenocrates meant by saying that Plato chose this form of exposition διδασκαλίας χάριν.[4] This is well expressed by De Lacy:[6] "As the generation of Soul and the Irregular Motions of the Precosmos took place before the creation of Time, this form of the account may be only a device for analysing certain features of reality." I conclude, therefore, that the Timaeus gives us an account of what Plato believed, but in a form which was not meant to be pressed literally but was employed as the most convenient for expounding difficult truths which Plato had thought out as the result of his analysis of reality. Plato does not claim that this account is Truth in the same certain way in which knowledge of the Ideas was Truth, but so far as it went it gave what Plato really believed.

Summary. We have seen, then, that Plato adopted the dialogue form for his writings as that most appropriate to his original purpose, that of portraying a living picture of Socrates. But as from the outset Plato took the liberty of suppressing certain unpalatable Socratic dicta and of reinterpreting others that he had thought out for himself, Plato, as he became the more removed in time from the death of Socrates, put more and more of his own thoughts into the mouth of his master. In accordance with the literary convention of his day, Plato, from about the time of the Meno, began to use his figure of Socrates not merely to present an idealised picture of Socrates but to use him as the exponent of his own philosophical beliefs, generally however demarcating these as

1. Plato's Theory of Motion 67. 2. Plato's Theory of Ideas 126-8.
3. Cambridge Ancient History VI.ix.IV.330, and Plato's Cosmology 29 :"μῦθος does not mean that it is only provisional and must be constantly revised, only that physics does not yield exact truth." 4. Classical Quarterly XXXIII.73.
5. The Philosophy of Plato 127. 6. Classical Philology XXXIV.112.

non-Socratic and marking them off as out of character by means of certain artistic devices such as making Socrates dream, prophesy, or doubt them. This he felt the more justified in doing as he believed that his own philosophy was the development, the logical outcome of Socraticism, and as these dialogues were directed not to specialists but to the general educated public of his day. Hence, in these earlier dialogues the particular doctrines expounded are not to be taken as literal expressions of Plato's beliefs, but it is rather the general philosophical position from which they are approached that is of value for us.

In the dialogues written subsequent to the Phaedrus we notice a change in approach. This change lies in two directions. In the first, Socrates as the Master recedes to be replaced by Socrates as predecessor - and there is a later tendency to replace Socrates by other characters as chief speaker. This tendency must be interpreted in the same way as the earlier practice of using Socrates as protagonist. That is, just as Plato had felt entitled to use Socrates as his mouthpiece because in this way he could acknowledge his debt to him - his philosophy was a development of the Socratic - so the choice of an Eleatic or a Pythagorean speaker is to be regarded as an acknowledgement that in the dialogue in question the doctrine was a development of or had been influenced by the Eleatic or the Pythagorean philosophy respectively. In the second place, there is a change in the audience, so to speak. As Field[1] so excellently expresses it:"The later dialogues are directed less to the general public and more to those specially interested in philosophical questions." Hence, we can expect to find a more detailed exposition of certain tenets of his philosophy if less of his broad philosophical position. But there is an important corollary to this change in public and the consequently more specialised approach namely, "The later dialogues only give what Plato saw fit to give the public in order to define his attitude to other schools of philosophy."[2] Or to keep to Field's[3] expression of the matter: "PLato is not giving a systematic account of his philosophy, but discussing controversies on particular points that had arisen in connection with it." So we shall find no complete manual of Platonism, but only discussions of particular points.

Now if Plato had written monographs on these particular points we should have been able to obtain exact if not complete knowledge of his doctrines; but as they are presented in the form of dialogues one must expect to find a distortion of the doctrines presented to suit the mise en scène, apart from the limitation of the tenets expounded to strict relevance to the particular question discussed, as has already been mentioned. Thus, when 'Parmenides' expounds

1. The Philosophy of Plato 108, cp. 12.
2. Burnet, Greek Philosophy 214. 3. Op. cit. 109.

Plato's beliefs, we must expect those beliefs to be given a form resembling what Parmenides might have said: for example, he would speak of the One rather than of the Idea. There is also the question of avoiding too fragrant anachronisms: if Socrates is made to expound some belief of Plato's concerning the constitution of things from elements, we must expect 'Socrates' to name these elements in a way known to the V. century rather than to the IV, and to call them Limit and Unlimited rather than One and Great and Small. But the interpretation of such particular instances is better left over for treatment as they arise.

In conclusion, we may use the dialogues as evidence for Plato's own beliefs, but with certain reservations. We must not expect to find any systematic exposition of Platonism, but only more or less isolated tenets determined by the particular question dealt with by the dialogue in which they appear. While these tenets can be regarded as Platonic constructions based on the philosophy of the person or school represented by the mouthpiece used by Plato in any particular case, they have for that very reason been modified to an uncertain extent to accord with the character, thoughts and time of the speaker, and are probably not expressed by Plato with the precision one might expect from a metaphysician, but are merely expressions of Plato's general underlying philosophical position modified according to the requirements of the mise en scène and expressed with varying looseness of definition as suits the genius of a dramatist. The more precise determination of the significance of any particular tenets must be decided in any particular case on the strength of the factors which might be considered to have influenced its expression. And with this in mind we now turn to the examination of those doctrines relevant to our aim of establishing the historical correctness or otherwise of Aristotle's conceptions of those features of Platonism dealt with in the second chapter of Part I above. As is natural, we shall begin with those tenets which seem to belong to Plato's Earlier Theory of Ideas, that is, with the peculiarities of Plato's philosophy, or its differences from Pythagoreanism, as alleged by Aristotle in Metaphysics A.vi.

Section ii. The Evidence of Plato's Dialogues.

a) Plato's Earlier Theory of Ideas.

The purpose of this section is not to give a complete exposition of Platonism, for that lies outside the scope of this work, but merely to corroborate from Plato's dialogues those tenets of Platonism which Aristotle adduces, especially but not exclusively in Metaphysics A.vi, in connection with his resemblances to and differences from Pythagoreanism. Here we shall confine ourselves to the question of the Primary Differences or Peculiarities as set forth in Part I, Chapter 2, Section i above, which means in effect the Theory of Ideas as it appears in the earlier dialogues. These primary differences can be summarised as follows:-

1. Numbers, i.e. Ideas of Number, exist separately from sensible things.
2. The objects of mathematics are intermediate between Forms, i.e. numerical or mathematical Forms, and sensible things - i.e. the numbers and shapes of the things of this world - being like the former in that they are eternal and unchangeable, like the latter in being many.
3. The introduction of Forms was due to two influences with Plato's own conclusions drawn from these: i) Plato accepted that sensible things were in a state of Flux and there was no knowledge about them (which he continued to hold even in later years) - this he had from Cratylus; ii) Plato accepted Socrates' definitions as the objects of knowledge; iii) but he held that these were not sensible things but entities of another kind, because definitions could not be sensible things as those were always changing. To these points can be added iv) that Plato called these entities Ideas, which were characterised by being universal and yet individual - i.e. they were universals separate as substances from particulars; and v) that sensible things were named after the corresponding Idea inasmuch as they existed by Participation in that Idea. This relation of Participation Aristotle was unable to define from his knowledge of Plato's teachings, but seems to have conceived it indifferently as 'sharing in' or as the thing being modelled on the Idea, which served as an archetype. We shall start from point 3, leaving 1 and 2 for later discussion.

3.i) Flux. The Heraclitean doctrine of Flux is mentioned in several of Plato's dialogues, early as well as late, but one could not gather that Plato learnt it especially from Cratylus, for although in the dialogue of that name this theory forms one of the theses on which names are founded - for Socrates takes his stand between the extremes that the Name-giver was an exponent of Flux on the one hand, and of Parmenidean Rest on the other - it is Socrates who first mentions this theory, and at that suggests it to Hermogenes not to Cratylus:"Heraclitus said that 'all things are

in flux and nothing rests'",[1] and the corollary that "Naturally it is said that there could not be knowledge if all things change and nothing is stable"[2] is put forward by Socrates for the approval of Cratylus. One might deduce from the fact that these tenets are put into the mouth of Socrates rather than in that of Cratylus,[3] that this doctrine represents Plato's own belief.[4] At any rate, the recurrence of this theme in other dialogues is an indication that this was in fact Plato's own belief. For in the Theaetetus[5] it is said to be the belief of all philosophers with the exception of Parmenides that "there is no single thing or quality, but out of motion and change and admixture all things are Becoming relatively to one another....for nothing ever is,but all things are becoming." Again the corollary is stated,[6] "...Since whiteness itself is a flux or change which is passing into another colour, and is never to be caught standing still, can the name of any colour be rightly used at all?....And what would you say of perceptions?...Is there any stopping in the act of seeing and hearing? - Certainly not, if all things are in motion. - ...Yet perception is knowledge?..." Several other passages where Flux is given, apparently as Plato's own belief, are cited by Ross[3] and Cherniss,[4] so that we are in a position to conclude that Plato accepted the Heraclitean doctrine that all things were in a state of Flux and its corollary that there was no knowledge about them. And that he continued to hold this doctrine even in later years is apparent from the Timaeus:[7] "Water, when split up by fire or by air, settles down into one body of fire and two of air; particles of air, which have been dissolved from one portion would become two bodies of fire .And again, when fire is compressed by air, water or some earth...fighting its way out but being conquered and shattered, two bodies of fire are put together to make one figure of air, or if it is air that is overcome and broken up, one whole of water will be compacted from two and a half portions of air." Here is the notion of Flux, but with a new principle of geometrical figures built up of triangles replacing and indeed making more scientific the conventional interpretation in terms of Rarefaction and Condensation. Aristotle, then, is borne out at all points, except that no evidence can be found from the dialogues that Cratylus was his teacher.[8]

ii) Definitions. Five dialogues are almost exclusively concerned with the discovery, in the Socratic manner, of the definitions of various ethical concepts or universals: the Euthyphro with

1. Cratylus 402A. 2. Cratylus 440A. 3. Ross, Plato's Theory of Ideas 156: "In the Cratylus, Cratylus appears as a convinced Heraclitean, 440DE."- rather late in the dialogue!
4. Admitted even by Cherniss, Aristotle's Criticism of Plato 211.
5. Theaetetus 152DE. 6. Theaetetus 182DE. 7. Timaeus 56DE.
8. Diogenes Laertius III.6 init, states that Plato's teachers were Cratylus and Hermogenes, which looks like a deduction from the dialogue, Cratylus.

piety, the Laches with courage (elaborated in the Protagoras), the Charmides with temperance, the first book of the Republic with justice, and the Meno with virtue in general. As examples of Socrates' distinction between the loose examples of a virtue then currently mistaken for a definition and the true definition, the essence itself, we may cite the following passages, which are also of value because they illustrate the germ of the Ideal Theory taking root in Plato's mind, the object of the definition being what later was termed the Idea: "Remember that I did not ask you to give me two or three examples of piety, but to explain the general idea (αὐτὸ τὸ εἶδος) which makes all pious things to be pious."[1] "I wish to find out from you not only what men are brave as infantry but also as cavalry and in all phases of warfare, and not only in warfare but also brave in encountering dangers by sea, and those who are brave in the face of sickness and penury, or in the political arena, and further who are again not merely brave in suffering and affrights, but also boldy oppose their desires and pleasures, both in encountering and abstaining from them - for there are perhaps some, O Lachbs, who are brave even in such matters as these."[2] Such is the Socratic search for the definition, the common factor in a number of instances, the essence. In Plato's hands this becomes "the very Being with which true knowledge is concerned; the colourless, formless, intangible essence, visible only to the mind, the pilot of the soul,"[3] in a word, the Idea, which Plato places in the Supracelestial Sphere:[4] "In the revolution she (i.e. the soul) beholds Justice, and Temperance, and Knowledge Absolute, not in the form of generation or of relation, which men call existence, but Knowledge Absolute in existence absolute." Again Aristotle is corroborated : Plato's Ideas are derived from the Socratic definitions as the true objects of knowledge.

iii) The Deduction of Ideas. What we have seen in i and ii above are Heraclitus' Flux and Socrates' definitions or universals. That Plato accepted these tenets is shown by their being enunciated in several places in the dialogues, but better by their being used as the foundation on which Plato erects the nucleus of his Theory of Ideas. This nucleus, the existence of Ideas as eternal, unchangeable objects of knowledge separate from sensible things, is implicit wherever Plato mentions the existence of Ideas, the reality of knowledge and the distinction between knowledge and opinion, but is explicit in the Cratylus, where the statement of the assertion of the existence and manner of existence of such entities closely corresponds to Aristotle's account in the Metaphysics - so close indeed that it is tempting to suppose that Aristotle drew his

1. Euthyphro 6D. 2. Laches 191DE. Ross, Plato's Theory of Ideas 11, sees here the seeds of the Ideal Theory.
3. Phaedrus 247C. 4. Phaedrus 247DE.

account directly from this dialogue.

However that may be, the demonstration of the existence of the Ideas is given in the Cratylus[1] as follows:"Let us then consider this,....whether in reality those who laid down names thought that all things were constantly moving and in flux. ....For consider, my dear Cratylus, what I have often dreamed. Shall we say that there is an Absolute Beauty and Good and each such thing or not?...And consider this, not whether some face or suchlike is beautiful and all these things which are in flux, but, let/us say, Absolute Beauty, is not this always such as it is?...And could we rightly say this very thing, if it constantly flowed away, first that it is, then that it is such, or would it not necessarily immediately become different even while we were speaking, give ground and never be so? ....But if it is always so and remains the same, how could it change or move? ...Nor could one rightly say there was knowledge, O Cratylus, if all things changed and nothing was stable....For if that very form of knowledge were to change, at that same time it would change to another form than knowledge and there would be no longer knowledge."

That this theory is Plato's own and not Socrates', by whom it is enunciated, is shown by Socrates' dreaming it,[2] and also by much the same resultant position being put forward by the Eleatic Stranger, who, as we said above, represents Plato himself: "If Justice and Wisdom and other Virtues and their opposites exist, and further if Soul exists in which these are manifested, shall they say that any one of these is visible and tangible, or that all are invisible?...For if they are willing to admit that even one small part of reality is immaterial, it will suffice."[3] This is the conclusion drawn from the thesis and antithesis that all things are sensible and in motion, and that all things are immobile, respectively, and this conclusion shows that sensible things are indeed in motion, but that such immaterial entities as quoted also exist. The argument, then, holds good not only for Plato's Earlier but also for his Later Theory of Ideas, of which, as will appear, the Sophist gives an exposition.[4]

iv) Separation. Such entities, then, are objects of knowledge or what Aristotle calls Universals, inasmuch as they are the objects of the Socratic definition, and because they are not in Flux they are separate from the world of sense. If it can be shown from the dialogues that the Ideas were separate, transcendent, Aristotle will have been corroborated in this point also, for this is the fact underlying his interpretation of the Ideas both as universal and as

1. Cratylus 439C-440B. 2. Cratylus 439C in the quotation cited.
3. Sophist 247 B & D. 4. This, I think, disposes of Liebrucks' finding the origin of Ideas in Plato's politics, Platons Entwicklung zur Dialektik 24, and of Field's alleged origin in Pythagorean mathematics, The Philosophy of Plato 36-43.

individual. No one denies that Aristotle had the habit of couching the doctrines of his predecessors in his own terminology nor that he drew out the implications which any doctrine under discussion might have according to his own system, and the Idea as both universal and individual is an example of this; but certain critics[1] allege that for Plato the Idea was not separate from things, but this was a misunderstanding by Aristotle of the nature of the Idea.

It is perhaps true that the dialogues written before the Phaedo treat the Idea as immanent,[2] which may have been due to Plato's desire to keep as close as possible to Socrates,[3] but at any rate in the Phaedo and in the Parmenides the Idea is frankly transcendental, and while the Supracelestial Sphere of Phaedrus 247C-E need not be taken literally it does stand for extreme separation.[4] Unfortunately there is some dispute about the interpretation of these dialogues. Concerning the Phaedo, where Immortality is proved both by the kinship of the soul with the Ideas and by Recollection of the Ideas implying the pre-existence of the soul, Cornford[5] takes his stand on the obvious fact that Reminiscence, Immortality, and the separateness of the Forms, stand or fall together, and Ross[6] argues that Anamnesis involves the separation of the Ideas recollected since particulars only suggest the Forms and this presupposes the prior knowledge of them. On the other hand, Stewart[7] points out that Anamnesis is presented in the Meno as an Orphic belief, not a Platonic dogma; Ritter,[8] making a distinction between the results attained by scientific investigation and those of myth and poetry, can see no more in the doctrine of Immortality than the fact that there is 'a priori' knowledge in the soul; Field[9] points to the Socratic doubt in the Meno that he is not prepared to insist on the doctrine in the form presented. On the strength of these and other kindred arguments the Idea is reduced to a point of view, having the permanence of Laws of Nature indeed, but being in no sense separate entities.[10] But all these points turn on the interpretation of what have been termed above artistic devices, and I believe that the truth lies with Stenzel[11] when he says we must regard Reminiscence and Immortality as myths unless we accept the hypothesis of such artistic devices: so Reminiscence is used to prove Immortality but Socrates compares it to a swan-song; in Phaedo 100A the Ideas are hypotheses, but this hypothesis is used to prove Immortality, which again Socrates later doubts. These doubts are not meant by

1. E.g. Ritter, The Essence of Plato's Philosophy 111 & 113 with note 1; Stewart, Plato's Doctrine of Ideas 3-4.
2. Ross, Plato's Theory of Ideas 21. 3. Cp. Classical Quarterly XX. 76-7. 4. Ross, op. cit. 81. 5. Plato and Parmenides 75; Plato's Theory of Knowledge 6; cp. Liebrucks, Platons Entwicklung zur Dialektik 31-2. 6. Op. cit. 35, cp. 25.
7. The Myths of Plato 344-5; cp. Shorey, What Plato Said 513 ad Meno 81DE. 8. The Essence of Plato's Philosophy 104.
9. The Philosophy of Plato 65. 10. Stewart, Plato's Doctrine of Ideas 6. 11. Plato's Method of Dialectic 5-9.

Plato to signify that he believed the doctrines to be myths, but to show that while these doctrines are uttered by Socrates they are non-Socratic, are Plato's own thoughts. The Idea is never perfectly represented by particulars, but these only approximate to the Ideas. This 'Shortfall' makes our knowledge of the Ideas inconceivable unless they were already known to us in a pre-existent state of the soul and now are Recollected. And if the soul had a previous state of existence and the Ideas are immaterial and yet really real, it can be proved, according to the Phaedo, that the soul is immortal. That is Plato's belief, and unless the Ideas were separate, neither Shortfall, Reminiscence nor Immortality could be demonstrated, nor even assumed.

But separation is explicit in the Parmenides, where, as we have seen, Socrates is the exponent of this Theory of Ideas. There we have: "There are certain Ideas SEPARATE (χωρίς) from their participants, and Likeness itself is separate from the likeness which we have."[1] Further, there is "an Idea alone by itself of Justice.....and an Idea of Man APART FROM (χωρίς) us men and all who are like us, an Absolute Idea of Man."[2] Indeed, the very criticisms of 'Parmenides' turn on the consequences of defining the Ideas as alone by themselves,[3] with the result that none of the Ideas can be in us or even related to our world;[4] so absolute, indeed, is the gulf between our world and the Ideas that they are logically unknowable by us[5] - which is why Reminiscence was an essential part of Plato's Theory of Knowledge in this Earlier Period.

v) Participation. That sensible particulars are named after the Ideas which have the same name as they, and that this is due to Participation, is stated in Phaedo 102B:[6] "After they had agreed that Ideas exist, and that other things participate in them and DERIVE THEIR NAMES FROM THEM, Socrates, if I remember rightly, said... ..." So also Parmenides 130E:[7] "Are there certain Ideas in which other things participate and DERIVE THEIR NAMES?"

As for Participation itself, Socrates asserts it as the manner in which things have their characteristics: "And you would loudly asseverate that you know of no way in which anything comes into existence except by PARTICIPATION in its own proper essence, and consequently, as far as you know, the only cause of two is the PARTICIPATION in Duality."[8] Now there is a startling resemblance between parts of this dialogue, the Phaedo, and that part of the Parmenides in which Socrates enunciates his Theory of Ideas. Shortly before the passage just quoted we have, "By Greatness only, great things become great and greater greater, and by Smallness the less become less."[9] Substitute the pairs Like and Unlike for Great and Small, and we have, "And some things, PARTICIPATING in Likeness,

1. Parmenides 130B. 2. Parmenides 130BC. 3. Parmenides 133A.
4. Parmenides 133C-E. 5. Parmenides 134BC. 6. Cp. Phaedo 103B.
7. Cp. Parmenides 133D. 8. Phaedo 101C. 9, Phaedo 100E.

become like according to their degree of PARTICIPATION, and the unlike by the Unlike."[1] A further striking resemblance is found in the contrast between things which share in opposite characteristics and the Ideas which never do. Thus, Phaedo 74BC states that these pieces of wood or stone appear at one time equal and at another time unequal, but real equals and the Idea of Equality are never unequal. In Parmenides 129DE, we have not merely the thought but also part of the turn of phrase:"If one tries to make out that stones and pieces of wood and suchlike are both one and many, we shall say that such thing is indeed many and one, but not that the One is many or the Many one.....But if, as I said just now, one distinguishes Ideas apart from themselves, like Likeness and Unlikeness,.....and states that they are capable of mingling among themselves and intermixing, I should be aghast." Indeed, there seems to be little doubt that it is one and the same theory expounded in both the Phaedo and the Parmenides.

Now there is a curious anomaly in both these dialogues concerning the interpretation of Participation. In the Phaedo, on the one hand, Participation is almost synonymous with Presence, as in 100D: "I hold and am assured in my own mind that nothing makes a thing beautiful but the PRESENCE and Participation of Beauty in whatever way or manner obtained." On the other hand, in Phaedo 74D and elsewhere we have such phrases as this:"They fall short of this perfect Equality in a measure." This seems to imply that the sensible is an imperfect copy of the Idea, its Model, a notion which is explicit in Cratylus 389B:"Should the shuttle break, would he who is making it make another by looking towards the broken one or to that form according to which he made also the broken one?.... So it would be most right to call that the Shuttle Which Is." And in Republic ØX.596B:"Are we not accustomed to say that the craftsman of each artefact makes the tables and beds which we use by looking towards the Idea, and other things likewise?" Similarly in the earlier part of the Timaeus, which seems to present a naïve form of the Theory of Ideas, the Craftsman in excelsis, the Demiurge, when creating the Cosmos, uses the Intelligible World as his Model:"When the Demiurge, constantly looking towards the Self-subsistent, using it as a sort of Model, creates its shape and strength, all must necessarily be finished beautifully."[2] Again, in Phaedrus 250B we meet with the "Earthly copies of Justice and Temperance," and in 250D with the "visible counterparts of Beauty." With this we may compare Symposium 212A:"Beholding Beauty with the eye of the mind, he will be able to bring forth not IMAGES of Beauty but realities."

There is a similar dual interpretation of the relation of things to Ideas in the Parmenides. For the first compare Parmenides 129AB:"There are two opposite Ideas, Likeness and Unlikeness, and

1. Parmenides 129A. 2. Timaeus 28A,

in these you and I and indeed all the Many SHARE. Those things that SHARE in Likeness become like insofar as they SHARE therein, and unlike by Unlikeness, and both like and unlike by both of these. And after all, what wonder is it if things are both like and unlike on account of participating in both these Ideas." The alternative version appears in Parmenides 132D:"The Participation of things in Ideas is nothing but RESEMBLING them."

The solution of this anomaly seems to be given in Phaedo 100 D, where after the sentence quoted above[1] Socrates adds,"As to the manner (of Participation) I am uncertain." Strictly interpreted, the separation of the Ideas is incompatible with Participation and requires Imitation to explain the existence of sensibles; and yet, that Plato, when he spoke of the relation between things and Ideas, had in mind something else that the external resemblance implied by the notion of Imitation, is apparent in two passages, where the grossly material interpretation of Participation must have had some basis whether that interpretation was Plato's or not - for some think it was a misinterpretation by Antisthenes,[2] others of certain students in the Academy.[3] I refer firstly to Euthydemus 300E-1A: "And if an ox is present near you, he said, are you an ox, and because I am now near you, are you Dionysodorus?" True, this is buffoonery, but the difficulty was serious:"And have you, Socrates, ever seen a beautiful thing? - Yes, I said, and many too, Dionysodorus. - Are such things, he said, different from Beauty or the same with Beauty? - And I was completely at a loss, and thought that I was justly suffering because I had complained, nevertheless I said that they were different from Beauty itself;FOR THERE IS A KIND OF BEAUTY IN EACH OF THEM."The same material interpretation is adopted by 'Parmenides' in his criticism of Participation, 131A-C: "Such participation can only be in the whole species or in any part of it. The whole species in any individual, then, is one. But being one in many and separate things, it is at the same time whole and so separate itself from itself...Then these species are divisible, and that which participates in them participates in a part only. Therefore, you must assert that one species is divided and still one." Dickenson[4] believes that the Parmenides criticises not Methexis per sê, but a materialistic interpretation of it, but I feel that Hardie[5] is more correct, that the criticism shows that Methexis is an empty metaphor by developing the consequences of taking it literally. Indeed, the last word seems to be Ross',[6] that Plato was not quite satisfied with either expression, Participation or Imitation, and saw no way of getting nearer the truth than by using both, for the relation was unique and indefinable.

1. Page 212. 2. Zeller, Plato and the Older Academy 126 note 80.
3. Page 197 above. 4. Journal of Philology XX.125.
5. A Study in Plato 87. 6. Plato's Theory of Ideas 231.

In conclusion, then, Plato was unable to give any final expression of the relation between the particular and the Idea, but used both the relation between the copy and its original and that between the attribute and the substrate[1] to express the relation. And in these respects Aristotle's evidence is borne out, that both Imitation and Participation were unsatisfactory metaphors for expressing the relation between the thing and the Idea, but there was no other more satisfactory manner of expressing it known to or expounded by Plato.

1. Ideas of Number. As Ideas, Ideas of Number would be separate and are found in the dialogues in several places, of which the clearest mention is Phaedo 101BC: "In like manner one would be afraid to say that 10 exceeded 8 by, and by reason of, 2; but one would say by, and by reason of, Number....Again, would you not be cautious of affirming that the addition of 1 to 1, or the division of 1, is the cause of 2? And you would loudly asseverate that you know of no way in which anything comes into existence except by participation in its own proper essence, and consequently, as far as you know, the only cause of 2 is the participation in Duality - this is the way to make 2, and the participation in One is the way to make 1." On the strength of this, Ideas of Number are recognised as belonging to the Earlier Theory by Cook Wilson,[2] Cherniss,[3] Ross,[4] and van der Wielen,[5] and so Aristotle is corroborated. These Ideas of Number do not seem to be mentioned in the later dialogues, but are implicit in the Theory, since there is no reason for supposing that Plato abandoned this class of Ideas. There is, however, one passage where such entities seem to be alluded to, Timaeus 53B: "When the work of setting in order this universe was being undertaken, first He gave shapes to Fire, and Water, and Earth, and Air, which bore some traces of their own nature, yet were altogether in such a condition as was natural in the absence of God, and inasmuch as this was then their natural condition He shaped these things by means of Forms and NUMBERS".

2. Objects of Mathematics. There is much contention whether the Mathematicals appear at all in Plato's dialogues, and even more so whether they are to be found in the dialogues prior to the Phaedrus, i.e. in his earlier period. As every possible reference has been challenged as well as accepted, it may be useful to recount the various interpretations of such passages by modern critics.

In the Republic, the Simile of the Line[6] deals with four mental faculties, of which the third is Dianoia and the fourth Noesis. It is reasonable to suppose, in view of the division of the Line in a proportion corresponding to the alleged relation between a copy

1. So Baldry, Classical Quarterly XXXI.145.
2. Classical Review XVIII.249. 3. Riddle of the Early Academy 34
4. Aristotle's Metaphysics I.lii ; Plato's Theory of Ideas 178.
5. Die Ideegetallen van Plato 31-33. 6. Republic VI.509D-510B.

and its original, that the objects of Dianoia are the images of the objects of Noësis, the Ideas. But as the objects of the second division are sensibles, the objects of Dianoia will be intermediate between sensibles and Ideas, and so reflect Aristotle's evidence regarding the Objects of Mathematics, intermediate between Ideas and things. Following this line of reasoning many critics assert that these Mathematicals are to be found in the objects of Dianoia, Plato making no explicit mention thereof because there was no occasion to do so.[1] This last argument has been countered by Murphy,[2] and Hackforth,[3] that if Plato had these Mathematicals in mind he would have said so, making his meaning clear in a few words instead of giving the long and involved explanation of the distinction of reality within the sphere of Ideas that he did. In this long parenthesis the references to mathematical processes are intended only by way of explanation of this distinction, not to indicate the proper objects of Dianoia. In actual fact, as several critics[4] point out, the difference between these two subdivisions of the Line is one of method alone, the objects of both being the same - Ideas. If there is any difference at all between these objects it is that Noësis studies Ideas in the light of the Good, whereas the objects of Dianoia are Ideas imperfectly known, without the Idea of the Good.[5] Indeed, in the one place where Plato is specific, the objects of mathematics, i.e. of Dianoia, are said to be τοῦ τετραγώνου αὐτοῦ and διαμέτρου αὐτῆς, Republic 510D, which most critics[6] take as being obviously Ideas, although van der Wielen[7] is not sure. The whole matter has been well summed up by Cook Wilson,[8] that Dianoia is concerned with the objects of mathematics and is between Nous and Doxa, so that its objects SEEM to be the Intermediates of Aristotle's evidence, but this is not so. Its objects are Ideas, and these differ from the objects of Noësis in that they are not connected with the Good. Any Idea, whether mathematical or not, before its connection with the Good would be the object of Dianoia. And to the commentators who, besides those already cited, reject the doctrine of Intermediates in the Line, we add Stocks,[9] Ferguson,[10] Jackson,[11] Cornford,[12] and Grube.[13]

1. Hardie, A Study in Plato 53-55, cp. Robin, Greek Thought 193; Paton, Proceedings of the Aristotelian Society XXII.70-74; Adam, The Republic of Plato II.159; Frank, Plato und die sogenannten Pythagoreer 116; Robin, Greek Thought 211, and Platon 110.
2. Classical Quarterly XXVI.100. 3. Classical Quarterly XXXVI.2.
4. Brommer, Mnemosyne XI.iv.267-8; Robinson, Plato's Earlier Dialectic 207-8; Ross, Plato's Theory of Ideas 47-8 and 63.
5. Classical Quarterly XXXVI.1-2; Stenzel, Plato's Method of Dialectic xii; Classical Quarterly XXVIII.201.
6. Journal of Philology II.102-3; Ross, Aristotle's Metaphysics I. 168; Plato's Theory of Ideas 59-60; Classical Quarterly XXXVI. 3. 7. Die Ideegetallen van Plato 49. 8. Classical Review XVIII.257-9. 9. Classical Quarterly V.83. 10. Classical Quarterly XV.150-1. 11. Journal of Philology X.133-6.
12. Mind XLI.38. 13. Plato's Thought 301-2.

As examples of the recognition of Mathematicals in other places in the Republic, Adam[1] cites 525E, van der Wielen[2] 522E-6E, where conceptual numbers are distinguished from physical numbers, but this may mean no more than mathematical numbers[3] as abstractions, rather than as separate entities. As Ross[4] says, such entities are implicit, but not actually made clear, and we must conclude that there is no good evidence in Plato's earlier dialogues for his belief in Objects of Mathematics distinct from and intermediate between Ideas and sensibles.

In the later dialogues there are three passages which seem to recognise Mathematicals. Most explicit is Philebus 56C, cited by Adam,[1] and van der Wielen,[2] but again Ross[5] points out that the identical units there mentioned are on a par with those of Republic 526A and add nothing to the question. Hackforth[6] draws a distinction between πέρας and πέρας ἔχοντα in the description of the Limit in the Philebus, affecting to see there the doctrine of Mathematicals as the ground for the distinction, but this seems rather fanciful. Finally Field[7], Adam[8], and Stenzel,[9] interpret the εἰδοῦντα of Timaeus 50C as Objects of Mathematics, intermediate between things and Forms, and Ross[10] was inclined to agree in his earlier work, but in his later[11] he came to the conclusion that these εἰδοῦντα were not eternal and not necessarily mathematical figures, but were sensible qualities. Indeed, since Epistle vii.342A-C makes no mention at all of anything intermediate between the Idea and its image, and the same position is reflected in Laws 895D, Ross[12] thinks that this doctrine of Intermediates can only have been formulated very near the end of Plato's life.

But I think that in this case silence is no argument, and it is quite possible that Plato held the doctrine without having had any occasion of mentioning it in his dialogues.

1. The Republic of Plato II. 111 ad 525E. 2. Op. cit. 21-23.
3. Op. cit. 50 note 67. 4. Plato's Theory of Ideas 60-61.
5. Plato's Theory of Ideas 61. 6. Classical Quarterly XXXIII.27.
7. The Philosophy of Plato 141-2. 8. The Republic of Plato II.161.
9. Zahl und Gestalt 4. 10. Aristotle's Metaphysics I.168.
11. Plato's Theory of Ideas 61 and 224. 12. Op. cit. 62 and 141.

b) Plato's Later Theory of Ideas.

The points listed by Aristotle in which Platonism resembled Pythagoreanism are as follows:[1] 1. Participation was much the same thing as Pythagorean Imitation. We concluded that, if this was to be referred to Plato's Later Theory, it meant that, just as Aristotle interpreted the relation between things and Numbers in Pythagoreanism as an anticipation of his own formal cause, so he understood Plato's Ideas as the formal causes of things.

2. Both philosophies regarded the One as substance, which we have interpreted to mean that, for Plato, the One was, to use Aristotle's terminology, the formal cause of the Idea-Numbers.

3. Numbers were the causes of the reality of other things. It seems most likely that this meant, for Aristotle, that Plato's Idea-Numbers were the formal causes of sensible things, and although a more restricted interpretation is possible, viz. that Aristotle had in mind no more than Ideas of Number, I shall adopt the former interpretation here, as more in keeping with the other points of resemblance.

4. The other element than the One was an Infinite. We have seen that these two elements, the One and an Infinite, were the elements of Numbers, and since Plato is alleged to have derived Ideas from these same two elements, the Ideas were Numbers in respect of their origin. Hence, these four points of resemblance really amount to two broad features of the Later Platonism: 2 and 4 taken together allege that Ideas were composed of the One and an Infinite as their elements, whereby the Ideas were Numbers, and points 1 and 3 taken together add that these Idea-Numbers were the formal causes of sensible things.

Now the Secondary Differences, discussed in Part I, Chapter 2, Section iii, centre around the above-mentioned points of resemblance and should be discussed here along with them. These differences are as follows: 1. While there was a resemblance between Plato's and the Pythagorean relation between things and Ideas or Numbers respectively, the term Plato used was different, namely Participation. As this relation has been discussed above and the provenance of the term Participation has been touched upon,[2] it does not seem necessary to deal with this difference in nomenclature again, and accordingly I shall omit further reference to this point.

2. Plato's Infinite differed from the Pythagorean in being a dyad. We concluded that this might have two meanings, first, that Plato used two Infinites, one for Idea-Numbers and another for sensibles, secondly, that the Infinite used for the generation of the Ideas of Number was a two-way continuum. This latter raised the question of the generation of Ideal Numbers and the meaning of the term Equalisation. Unfortunately there is no indication whatsoever in the

1. See Part I, Chapter 2, Section ii. 2. Page 214 above.

dialogues concerning the meaning of this Equalisation or of its mode of operation, and a solitary reference[1] to the generation of Numbers, which, since it makes use of multiplication in this generation, is generally[2] taken to refer not to Ideal Numbers but to mathematical numbers, is irrelevant. The other points are duplicated in the next difference.

3. Plato's Infinite differs from the Pythagorean in being both in sensibles and in Ideas separately, so that he used two Infinites. We have seen that Aristotle interpreted Plato's material substrate as a principle of multiplicity and as different in species but not in genus from his intelligible substrate. This, taken with the previous point and incorporated with the two broad features in the later Platonism deduced in point 4 on the previous page, gives the following scheme:-

The Ideas were composed of the One and an Infinite as their elements, whereby the Ideas were Numbers. This Infinite, the intelligible substrate, was a two-way continuum and specifically different from the material substrate. Sensible things were composed of the material substrate with Idea-Numbers as their formal causes. This material substrate was a principle of multiplicity, that is one application to it of the Idea-Numbers gave rise to the multiplicity of sensible particulars.

4. A last point of difference from Pythagoreanism was that Plato's One was separate from things. This is a corollary of the separation of Ideas, of which it was the formal cause, and requires no especial discussion.

Finally, in Part I, Chapter 3, we reviewed the evidence for a change in Platonism, and saw that Aristotle gave as the reason for this change the necessity of proving that Not-Being could exist if the multiplicity of sensibles was to be explained; for sensible particulars would then be derived from Being, that is the Ideas, and this Not-Being which had some sort of existence.

Hence, in order to check the historical truth of Aristotle's conceptions of that phase of Platonism underlying the points of agreement that he lists between Platonism and Pythagoreanism together with the deviations from Pythagoreanism in these points of agreement, we have to investigate the evidence of the dialogues in respect of the following points:-

1. Parmenides 143A-4A.
2. So Ross, Aristotle's Metaphysics I.174; and in Plato's Theory of Ideas 187-8 he denies that this account bears any resemblance to Aristotle's account. On the other hand, Brommer, Mnemosyne XI.iv.266 and 273-4, interprets the generation as that of Ideal Numbers from the Odd and Even, the use of multiplication being only appearance. But even granting this, Brommer still fails to explain how a generation from Odd and Even squares with Aristotle's account or where Equalisation comes in.

α) Corresponding to the subject-matter of Part I, Chapter 3, pages 127-132, we must ascertain from Plato's dialogues whether there is evidence for a change in his Ideal Theory, whether the motivation for this change was the need to find an ontological ground for the multiplicity of sensible particulars, and whether this ground was a Not-Being which had some sort of existence.

β) Corresponding to the subject-matter of Part I, Chapter 2, sections ii and iii, we must ascertain what evidence there is in the dialogues for the derivation of things and Ideas from elements, namely, Ideas from the One and the Infinite or Great and Small,[1] which was a two-way continuum,[2] things from Ideas and an Infinite[3] different in kind from the Ideal Infinite,[4] since it was rather a principle of multiplicity.[5]

These two questions cover the main points in Aristotle's evidence dealt with in the places cited in the footnotes to this page, and so cover most of the points of resemblance and difference mentioned above, but there are some tenets which cannot be corroborated from the dialogues and which have accordingly been omitted from this scheme. We cannot, for example, show from the dialogues either that the One and the Great and Small were the elements of Numbers or that by reason of their derivation from these same elements the Ideas were Numbers.[6] But silence is no argument since, as we have seen, the dialogues were not intended to give a complete picture of Plato's beliefs, but dealt only with certain specific questions. Hence, if Aristotle is corroborated in the points detailed above, α and β, or most of them, it seems only reasonable to give him the benefit of the doubt where the dialogues are silent. For, as has been said in the Introduction,[7] there are commentators who have altogether denied that there was any change whatsoever in the Ideal Theory and asserted that Aristotle's entire evidence concerning Idea-Numbers and the derivation of Ideas from elements is either a misunderstanding or a misrepresentation. If, then, despite the occasional nature of the dialogues and their consequent silence on certain points attested by Aristotle, it can be shown that they do testify to a change in Platonism along the lines suggested by Aristotle and to a derivation of Ideas and things from elements and similar in effect to what Aristotle says, then it will be sufficient I think to serve as corroboration of Aristotle's evidence.

1. See pages 81-2 above. 2. Pages 103, 116 and 122.
3. Pages 92 and 97. 4. Pages 110-111. 5. Pages 106-9.
6. It is a subterfuge to cite in this connection Philebus 15AB, which refers to Ideas as Monads or Henads, cp. Ross, Plato's Theory of Ideas 150. 7. See pages 13-14.

∝) The Crisis in Platonism.

An Interpretation of the Parmenides. In dealing with Metaphysics 1089a1-7 on pages 125ff above, we saw that Aristotle connected an alleged modification of Plato's Theory of Ideas with a difficulty that Plato encountered because of Parmenides' saying, "For never will this be proved that things that are-not are." This line is quoted in Sophist 237A, and that Aristotle actually has this dialogue in mind is further indicated by his reference in 1089a20-1 to Plato's identification of Not-Being with the False as in Sophist 240. And yet Plato refers us back, at the beginning of this dialogue, to the Parmenides, for Socrates asks, 217C, whether the Stranger prefers to expound his opinion in a long speech or "by means of questions, as once in my youth I seconded Parmenides, who at that time was already an old man, and who gave voice to most noble thoughts." I feel, then, that it is to the Parmenides that we must turn in the first instance for some indication of this change in Platonism referred to by Aristotle, though a more mature statement of the new position might be expected in the Sophist. This is confirmed by the position of the Parmenides as set out on page 179 above, for we have seen that the Phaedrus, while representing the culmination of the Earlier Platonism, is the first dialogue to mention the new Method of Division, and the Parmenides following soon after might well be expected to lay the foundation of the Later Platonism, of which Division was an important feature. I hope, then, to show from an examination of the Parmenides that this dialogue states as clearly as can be expected from a work which is more a dramatic than a technical composition that there was a change in Plato's Theory of Ideas, what the motivation was for this change, and along what lines the change was to have been effected.

That the Parmenides bears witness to a change in Platonism can be demonstrated from two lines of thought, first, from a consideration of the rôles of Socrates and Parmenides, and second, from an examination of certain devices used by Plato to make his meaning clear. We have argued in the first section of this chapter that the choice of Plato's chief speakers was determined by certain considerations, and that because Socrates was Plato's mouthpiece in the earlier dialogues, where this rôle was chosen for him because Plato felt his philosophy was a development of Socrates', in the Parmenides too his rôle must be interpreted in the same way - that is, Socrates here expounds Plato's Early Theory of Ideas. Now the Theory expounded by Socrates is subjected to a devastating criticism and irrespective of the provenance of this criticism, the fact that Plato's own Theory of Ideas is here criticised can only mean that Plato is making trial of his own philosophy. There may be weak points in detail in one or two of the criticisms - for example, Plato may have denied that he understood Participation in the

grossly material sense in which it is there presented - but taken as a whole the criticisms are undoubtedly devastating. In this case, the question arises whether (if the criticisms were for example Megarian criticisms levelled against the Ideas) Plato thought that these criticisms could be rebutted, or whether (if the criticisms were his own), or if he accepted them as valid) he thought that his Theory could be remodelled so as to escape the objections made. For, since he undoubtedly continued to maintain the existence of Ideas - the Theaetetus means as much[1] - he would not have thought that the Ideas would have to be abandoned as the result of these criticisms. That the correct alternative is the latter follows from the rôle of Parmenides, who is made to level these criticisms against the Ideas. We have argued above[2] that he represents Plato himself in his maturer period just as Socrates represented his earlier career. Parmenides is Plato's mouthpiece here because Plato felt that now (at the time of writing the Parmenides) he was being influenced by Eleaticism rather than by Socrates' definitions in approaching certain problems in his philosophy. What other explanation is consistent with his choice of protagonist? Parmenides replaces Socrates; Socrates was the spokesman of the Earlier Ideal Theory; Parmenides must then be the spokesman of the Later Theory, or at any rate of Plato's period of crisis. If then Parmenides represents Plato himself, the criticisms put into his mouth, whatever their ultimate provenance, must have been accepted as valid by Plato and the conclusion is inescapable that here his Earlier Ideas are shown up as defective. But Plato would not have publicly exposed his Ideas as unsatisfactory unless he had something to put in their place, or had at least an inkling of how to modify his theory so as to avoid the objections made, so that it is a priori probable that the answer to the criticisms is to be found in the second part of the Parmenides, the so-called Trope.

If this deduction be thought to be too fanciful, consider what Plato himself says by means of certain devices referred to above. To make this clear I first give an outline of the relevant parts of the dialogue. Referring to the first hypothesis of Zeno's first book,[3] Socrates asks him why he thinks it is impossible that if things are many, they should be both like and unlike, why their having contrary attributes is taken as a refutation of their existence.[4] Zeno, he says, doubtless accepts that there is an Idea of Likeness and one of Unlikeness, in which all things participate, being like insofar as they participate in Likeness, and unlike insofar as they participate in Unlikeness. There is, then, nothing remarkable in that things should be both like and unlike by participation in both Ideas.[5] What would be a marvel is if Likeness were unlike or Unlikeness were

1. See page 192 above. 2. Page 200, cp. 201.
3. Parmenides 127D. 4. Parmenides 127E. 5. Parmenides 129A.

like.[1] Socrates makes a point of this by repeating his challenge with the One and the Many: A man is many in that he has parts, right and left, before and after, up and down, and is yet one. This is no marvel. But if the One should be many or the Many one, then he would be amazed.[2] Again, if stones or logs were both many and one, all would agree; but if we distinguished separate Ideas like Likeness and Unlikeness, One and Many, Rest and Motion, etc., and showed them capable of intermingling, he would be aghast. He would be astounded if Zeno's contraries were demonstrated to hold good of the Ideas.[3]

Parmenides takes up the investigation of these Ideas after defining their nature as separate, but things participate in them. Socrates agrees that there are such Ideas as Justice, but doubts such as Fire and Water, and rejects those of Hair, Mud and Dirt, to which Parmenides replies that Socrates is still young and so is guided by the opinions of the many instead of by logic.[4]

Parmenides next takes up the question of Participation, showing that it can be neither by part nor by whole,[5] and refutes in turn various alternative interpretations put forward by Socrates.[6] In the course of his refutation of Participation, he shows that the divisibility of the Ideas entailed by Participation by part leads to Greatness being both great and small, the Equal being both equal and small, and, if the sentence is not spurious, to Smallness being both small and great.[7] Such are the difficulties into which one is led who maintains Absolute Ideas, but, says Parmenides, the real difficulty is still to come.[8] If Ideas are absolute, there are two separate worlds, that of Ideas and that of the senses, and there can be no relation between them,[9] and the Ideas are then unknowable by us,[10] but worse, the gods, while they can know the Ideas, cannot know us.[11]

Parmenides hints that there are also many other difficulties which might well non-plus an inexperienced lad like Socrates, but even a man skilled in dialectics would be puzzled; and yet if there are not such Ideas as Socrates maintains, thought would be impossible, and the power of dialectics would utterly perish.[12] He advises Socrates to exercise his mind while he is still young, or he will find that Truth will escape him.[13] He explains that the method of exercising the mind is to take one's stand on such Ideas, and ask what are the consequences for each Idea both if one maintains their existence and if one denies it,[14] the detail of the explanation suggesting a process reproduced in respect of the One in the rest of the dialogue. Again this method is stated to be the means whereby

1. Parmenides 129B. 2. Parmenides 129BC. 3. Parmenides 129DE.
4. Parmenides 130B-E. 5. Parmenides 131A-E. 6. Parmenides 132A-3A.
7. Parmenides 131CD. 8. Parmenides 133AB. 9. Parmenides 133C-E.
10. Parmenides 134AB. 11. Parmenides 134CD. 12. Parmenides 135A-C.
13. Parmenides 135D. 14. Parmenides 135E-6A with 136A-C.

of attaining the truth,[1] and when Zeno joins forces with Socrates to entreat Parmenides to give an example, he urges the smallness of the audience, "for the many are ignorant that without exercise it is impossible to arrive at the Truth."[2] Parmenides agrees to give an example of this method by taking as subject his own hypothesis, 'If the One is, and again if the One is not, what follows?'[3]

Now briefly the argument is that Socrates challenges Zeno's disproof of the Many inasmuch as they are contradictory, by showing on the assumption of the Theory of Ideas that a perfectly feasible explanation of these contradictions is possible. But Parmenides answers this by showing that the Theory of Ideas, as maintained by Socrates, is faulty. This leaves a threefold task to be performed. Firstly, the objections raised against the Theory of Ideas must be answered either by refuting them or by modifying the Theory. Secondly, the contradictions which belong to the world of sense must, in answer to Socrates' challenge to this effect, be shown to apply also to the world of Ideas, but without thereby rendering the Ideas self-contradictory and so untenable - and it is reasonable to suppose that, since such contradictions were impossible under the Early Theory, it is to a modified Theory that these contradictions can be shown to apply - in other words, these two points stand together. Thirdly, since the Early Theory, by which Socrates had explained the contradictions of sense, is tacitly abandoned as the result of Parmenides' criticisms, the task still remains of showing how the world of sense can combine contradictory attributes and yet be real. This threefold task is, in effect, undertaken by Parmenides since it is he who monopolises the rest of the dialogue, and so we ask - If Parmenides both criticises the Ideas and tacitly undertakes the task of reconstructing them, or at least of pointing the way thereto, what is the relation between these two divisions of the dialogue? Clearly Parmenides must represent Plato himself in his maturer thought just as Socrates represents Plato's own earlier thought. Parmenides, i.e. Plato, now sees the inadequacy of his Early Ideal Theory, which is criticised accordingly, and points the way to a reconstruction that will at once obviate those criticisms, allow for the One and the Many in the Ideal Sphere, and explain the One and the Many in the world of sense.[4] That this is indeed the correct interpretation is indicated by certain nota bene's that Plato has inserted in the course of the conversation.

These nota bene's are the repetition in three different places of certain thoughts, which must indicate Plato's intention:
i) In Socrates' explanation of the contradictions of sense,[5] he

1. Parmenides 136C. 2. Parmenides 136E. 3. Parmenides 136E.
4. Of course, this does not mean that Plato's real reason for modifying the Theory of Ideas was to explain these contradictions of sense; this is only the dramatic reason. 5. Parmenides 129A-E

takes a whole page to expound a very simple conception, and repeats himself twice with similar effect. There is nothing remarkable, he says, in these contradictions of sense, but, quoting his final statement, "If one first distinguishes Ideas apart by themselves, like Likeness and Unlikeness, One and Many, Rest and Motion, etc., and then asserts that they are capable of mingling and intermixing among themselves, I should be aghast."[1] He makes the challenge, then, which on account of its emphatic repetition we expect to be taken up, that "the same ἀπορία as Zeno demonstrated of the sense world be proved of the Ideas themselves."[2]

ii) Parmenides keeps harping on Socrates' youth, inexperience. When he has perplexed him concerning the extent of the world of Ideas, he says, "You are still young, Socrates, and philosophy has not yet got a hold on you, as in time it will, when you will despise none of these things; but now you consider men's opinions, on account of your youth."[3] While not so explicit, the same notion of Socrates' youth is implied in 133B: "The inexperienced would be forced to accept the argument that knowledge of the Ideas is impossible; and again that "there are many other difficulties that one could adduce against Ideas SUCH AS YOU MAINTAIN, so that you, hearing them, would be at a loss and doubt whether they exist, and if so, whether they are knowable to man."[4] And finally, "Get a hold on yourself and exercise your mind because of your inexperience, ...while you are still young; otherwise Truth will escape you."[5] I have capitalised 'such as you maintain' because I believe that this is the point at issue. We saw on page 222 above, in the summary of the context, that Parmenides did not claim that his criticism absolutely demolished the Ideas, made them quite untenable - Socrates, on account of his youth, his inexperience, was non-plussed, but a man of very great natural gifts might be expected to find some way of obviating the difficulties. If these difficulties hold good only of Ideas as maintained by Socrates, the solution would be to postulate Ideas of a different nature or of different composition. Hence this harping on Socrates' youth is as much as to say that the Ideas are untenable in the form in which Plato had hitherto held them, but now that he had reached maturity he would be able to obviate these difficulties by conceiving, formulating the Ideas differently.

iii) The nature of the dialectical exercise thus suggested is explained with unduly elaborate care, especially considering that an example follows, running from 135E to 136C, almost a page, making first a perfectly clear statement of the method, then giving an example in greater detail in respect of the One and the Many, then, taking up Likeness, and mentioning for similar treatment Unlikeness, Motion, Rest, Generation and Destruction, Being and Not-Being, and

1. Parmenides 129DE. 2. Parmenides 129E-130A. 3. Parmenides 130E.
4. Parmenides 135A. 5. Parmenides 135D.

concluding with a general statement of what has been thus detailed with so many reservations as to be very nearly unintelligible.

What does this all amount to? Note the connection between the passages thus emphasised: i) Socrates challenges the removal of the ἀπορία from the sensible to the Ideal world; ii)Socrates maintains incomposite Ideas - for only thus is it intelligible how their intercommunication should so utterly astound Socrates - and Parmenides replies that he is still young and should prosecute his studies further if he would reach the Truth; and iii) Parmenides specifies as an example of such studies a dialectical exercise such as is set out in the rest of the book. This, then, is the interpretation of the relation between the criticism of the Ideas and the dialectical exercise following: it fulfils Socrates' challenge to show that the Ideas are intercommunicable and so lays the foundation for a new, or at any rate a modified Theory of Ideas. That the dialectical exercise was indeed intended by Plato to answer Socrates' challenge by showing that not only the sense world but also the Ideal share in contradictions, is shown by the conclusion of the whole work:[1] "Let this then be said, that the One, whether it is or is not, both itself and the others are and are not in respect both of themselves and of one another, all things in all ways, and seem so and do not seem so."[2] Zeno's contraries are thus but a pretext for introducing the Ideas, and these Ideas are introduced in order to expound the implications of the One, the representative of the Ideas in general.[3] That this exposition is meant as a correction of the nature of the Ideas is shown by ii), that it is specifically given as an exercise whereby Socrates, who maintains Ideas such as he does on account of his youth and inexperience, might attain the Truth.

The Parmenides, then, represents a crisis in Plato's thought. He realises that the Ideas, as heretofore constituted, are open to many objections, but he is able to obviate these objections by modifying the nature of the Ideas .Aristotle, then,is corroborated in this, that there was a change in Platonism, and that this change was concerned with the implications of Eleatic thought - for it is Parmenides who is made to criticise the Ideas. But what the reason was for this modification and in what way the Ideas were modified, remain to be seen.

1. I prefer to interpret the conclusion in the above way. For although Cornford, Plato and Parmenides 107, believes that Plato was here producing a misleading appearance consciously to make us think the matter out for ourselves, Robinson, Plato's Earlier Dialectic 34, shows that Plato thought the contradictions were directly deduced from the premisses.
2. Parmenides 166C.
3. I.e. broadly speaking; for a more precise interpretation see page 227 et alibi.

The Dialectical Exercise. We have arrived at this position: Socrates maintains incomposite Ideas and in effect challenges Parmenides to show that they are capable of intermingling. Parmenides replies that Socrates' conception of the Ideas is incorrect because he is still too young. To arrive at their correct formulation he should undertake a dialectical exercise which he volunteers to exemplify by taking his own One as hypothesis. Thus, in the following dialectical exercise we expect firstly to have an exposition of the implications of the Eleatic One, and secondly a basis for a modified conception of the Ideas which allows them to intermingle.

Now this dialectical exercise can be set out schematically as follows:[1]

A. If the One be supposed to exist,

i) if it exists abstractedly, it is nothing, 137C-142A,

ii) if it exists united to Being, it is everything, 142B-157B;

iii) the Others are all things, 157B-159A,

iv) the Others are nothing, 159B-160B.

B. If the Not-One is supposed to exist,

v) if understood in a relative sense it is by itself everything, 160B-163B,

vi) if it exists abstractedly, it is by itself nothing, 163B-164B;

vii) the Others, as being freed from one-ness, are everything, 164B-165D,

viii) the Others are nothing, 165E-166B.

Now this seems to be twice as long as Parmenides had promised. For he had laid down, 137B, that one must consider the consequences both if the One is and if it is not, and the relevant part of 136A states that a deduction of the One must include what it is in respect both of itself and of the Many, this implying not 8 but the following 4 investigations: A. If the One is, how is it in respect a) of itself, and b) of the Many; B. if it does not exist, how is it in respect c) of itself, and d) of the Many. This scheme is discernible in the dialectical exercise, for a) is covered by i) and ii), b) by iii) and iv), c) by v) and vi), d) by vii) and viii), but each group contains two deductions instead of one, and from the above scheme it is clear that each of these deductions differs in the sense in which the One is understood,[2] whether abstractedly or united to Being. Now since in 137B[3] Parmenides says that he will

1. Based on Stallbaum's summary as given by Burges in his translation
2. So Jackson, Journal of Philology XI.306-7, that no two hypotheses have the same first element, therefore there is an inquiry into the relations of the One and the Many according to different conceptions. This is commended by Bury, Journal of Philology XXIII.185, and followed by Cornford, Plato and Parmenides 109.
3. "Let me begin from my own hypothesis, positing about the One itself, whether it exists or whether it does not exist, what must follow."

take his own One as the example, and the Eleatic One is most closely represented in hypothesis i, this I take to be the deduction of the Eleatic One;and with this is associated iv in the case of the Many, and vi and viii in the case of the non-existence of the One in respect of itself and the Others respectively. Consequently, according to what we said at the top of previous page, it is in the other hypotheses, ii, iii, v, and vii, that we expect to find Plato's basis for a modification of the Ideas such as would allow them to intermingle.

In discussing the separate hypotheses I shall not keep to the order in which they appear, but shall group them as seems most conducive to a clear exposition, but I shall start with the first.

Hypothesis i. From what has been said above the presumption is that the One of this hypothesis is the Eleatic One, that is the Universe, and the Others of hypothesis iv will then be the parts of the Universe.[1] I prefer to say, however, that the One is the Universe as revealed by Truth, the Others are the World of Seeming, thus following Parmenides' own division of his poem, for it will appear[2] that the Others are not parts of the One, indeed the One is defined as excluding parts. The One, then, is the Universe as conceived by Pure Reason, and the Others are its Appearance. It is in this sense that I interpret hypotheses i and iv. Further, it will be shown that many of Plato's deductions in respect of the One in hypothesis i agree with Parmenides's deduction in the Way of Truth, but yet there are notable exceptions. These I explain that Plato considered that in these respects Parmenides erred in his deduction, and he took it upon himself to correct Parmenides.[3] This is the explanation why he gave Parmenides the rôle of chief speaker: Plato considers his deduction of the One to be the correct one, a correction in fact of the Eleatic master's, and so assumes the rôle of the true interpreter of Eleaticism, expounding this truth as if it were that of a Parmenides brought back to life. The hypothesis runs as follows:-

"If there is One, the One would not be many, nor would there be a part of it nor even a whole, for it must not be many but one. Therefore, it will not be a whole nor have parts, if the One is to be one."[4] This agrees, so far as it goes, with the definition of the Eleatic One as given in Sophist 245A:"The truly One must be defined as without parts according to correct reasoning."

"Since it has no parts, it can have no beginning, middle nor

1. So apparently Cornford, Plato and Parmenides 208. 2. Page 230.
3. So Jackson, Journal of Philology XI.311 note 1:"In hypothesis i the Eleatic dogma is interpreted with a strictness which Parmenides did not attain." Wild, Plato's Theory of Man 229:"Hypothesis i is a purified Eleatic theology warning us against Pantheism."
4. Parmenides 137CD.

end, since these are parts, and so must be infinite and formless... Nor is the One anywhere, neither in itself nor in another, which denies both motion and rest of it."[1] This deviates considerably from Parmenides' poem, and yet gives what seems to be a deduction of the One which meets the Pythagorean criticism[2] that the One was ridiculous since it was many: for if it was finite, it would have beginning, middle and end, and so be three not one. Plato here shows that the truly One does not have beginning, middle nor end, since it has no parts, and so it must be infinite, and not finite, as indeed Melissus had allowed. But if infinite and formless, the One could not be a motionless sphere.[3] This is interesting, since Plato's words here agree with those quoted in the Sophist, except that the conclusion is the contrary. For here, Parmenides 137E, the sphere is defined as "having its extremes ON ALL SIDES EQUIDISTANT from the centre", and in Sophist 244E, Parmenides' Whole is thus described:"ON ALL SIDES it is like the mass of a well-rounded sphere EQUIDISTANT on all sides from the middle." We have here, then, a corrected deduction of the One, which meets the Pythagorean criticism.

"Since it is One, it cannot have any attributes, for this would imply others, so that it cannot be the same either with another or with itself, nor again different either from itself or from another. Nor can it have the varieties of Same and Different, viz. likeness and unlikeness."[4] Not only can it have no predicate of quality, but not even of quantity, for Sameness implies equality, Difference inequality, and since the former of each pair has been denied of the One, it cannot be equal or unequal either to itself or to another.[5] Nor are the predicates of change possible for it, for extending the concepts of equality and inequality to time, the One cannot be older or younger than itself, nor even of the same age with itself, nor with another, and so must be out of time altogether.[6] But under such conditions the One could not exist, and so could not be an object of knowledge, opinion or sensation at all. Such a state of affairs is manifestly impossible.[7] Now while there are one or two points here which resemble Parmenides' own deduction of the One, such as its not being different either from itself or from others, and its inability to be older or younger than itself, which is as much as to say that it was not nor will be, most of Plato's deductions in this passage are quite the contrary of Parmenides', especially that it is not, and that it cannot be known. It seems that just as Plato earlier corrected Parmenides in the light of historical criticisms of the One and its consequent modification by Melissus, so here

1. Parmenides 137D-8B condensed. 2. Page 159 above.
3. Cp. Wild, Plato's Theory of Man 229, that this corrects Parmenides' conception of the One as a motionless sphere. Compare also Journal of Philology XI.310 and Skemp, The Theory of Motion in Plato's Later Dialogues 13. 4. Parmenides 139B & E, condensed.
5. Parmenides 140B-D. 6. Parmenides 140E-1A. 7. Parmenides 141E-142A.

he goes even further and makes his own fresh deduction in respects which seemed to him to follow necessarily from the definiti on of the One as having no parts.

Thus, hypothesis i gives the One as formulated by Parmenides, but makes two sorts of correction in its deduction, firstly it takes account of historical crititicisms of it, and secondly it modifies Parmenides' deductions where Plato felt that they were not strictly deduced. Such a One, as thus correctly deduced, however, appears to be nothing:"But is it possible for the case to stand thus in regard to the One ? - It does not seem possible to me."[1] We expect, then, to find in hypothesis ii, which follows, the correct FORMULATION of the One, since Parmenides' formulation has been shown in hypothesis i to have been incorrectly deduced, the correct deduction made by Plato having led to the impossible. If Parmenides' One, when correctly deduced, leads to silence, his One must be incorrectly formulated[2] we expect to find the correct formulation in hypothesis ii, but before dealing with this, it will be convenient to deal with hypothesis iv, which is the complement of hypothesis i.

Hypothesis iv. As this hypothesis leads to a position similar to that of hypothesis i - viz, the denial of any possible attribute in respect of the Others, as hypothesis i denied these of the One - it is usual to interpret this hypothesis as the complement of the other. If, then, hypothesis i dealt with the Eleatic One, Parmenides Way of Truth, we expect hypothesis iv to deal with his Way of Seeming.[3] If, then, hypothesis i dealt with the Universe as the object of knowledge, hypothesis iv should deal with the Universe as Appearance and the Others should represent the multiplicity of sense. This hypothesis, then, shows that just as according to Parmenides' formulation of the One there can be no knowledge of the One, the alleged supreme object of knowledge,[4] so here (in hypothesis iv) no attributes whatsoever can be predicated of the Others, the world of Appearance, so that there can be absolutely nothing at all according to the assumption of the Eleatic ἓν ἔν .

The argument runs as follows:[5] The One and the Others are

1. Parmenides 142A. 2. Hypothesis i is interpreted as a refutation of the Eleatic One by Liebrucks, Platons Entwicklung zur Dialektik 188-190; Bury, Journal of Philology XXIII.180; Taylor, Mind V.489 & VI.32; Cornford, Plato and Parmenides 135; Milhaud, Les Philosophes Géomètres de la Grèce 333; Stewart, Plato's Doctrine of Ideas 83; and others. Almost the only other interpretation of this hypothesis is that of Robin, Platon 134, that it exhibits the consequences of denying the notion of relation, cp. Shorey, What Plato Said 292.
3. Jackson, Journal of Philology XI.313 & 324, and Chen, Classical Quarterly XXXVIII.109, take hypothesis iv as exhibiting the χωρισμὸς of things and Ideas in Plato's Early Theory. But this has already been sufficiently criticised in Parmenides I and led not to nihilism and the impossibility of predication as such, but only to the denial of any relation between Ideas and things - but things were allowed to have relations among themselves,.
4. In hypothesis i. 5. Parmenides 159B-160B, condensed.

distinct conceptions exhausting the whole of reality. As they are separate and the One has no parts,[1] the One cannot be in the Others either as a whole or as parts, so that the Others can partake of the One in no way at all. Nor can the Others be many since then each of this many would be a unity and a part of the whole, which has just been denied. Therefore, the Others, containing neither unity nor multiplicity, can have no single attribute nor any number of attributes, and are neither like nor unlike, neither same nor other, neither in motion nor at rest, neither in a state of becoming nor of being destroyed, neither greater nor less nor equal, nor have they experienced anything else of the sort.

Hypotheses iii and iv, then, show that Parmenides had incorrectly formulated his One, since if correctly deduced - and Parmenides had not deduced it correctly - no predication would be possible either of the One itself nor of the Others, neither of the Universe as the object of Pure Reason nor of its Appearance in the world of sense. Eleaticism led to nihilism because its One had been incorrectly formulated. Its correct formulation and the resultant position both in respect of the One and the Others is given in hypotheses ii and iii, to which we next turn.

Hypothesis ii. The second hypothesis is a subject of much controversy. That school of thought which sees in the Trope nothing more than a logical exercise places the first and the second hypotheses on the same level, and asserts that " the indiscriminate assertion of hypothesis ii is no more satisfactory than the indiscriminate negation of i".[2] With this point of view I cannot agree; as Taylor[3] says, "We are meant to gather from the opposite results of these hypotheses some fundamental difference in the interpretation of first principles." Jackson[4] pointed out that knowledge is stated to be possible for hypotheses ii and v, but not for i and vi, and hence, as ii solves the problem of the combination of opposite Ideas Plato must have held this correct and i wrong.[5] Thus, I have above[6] interpreted the significance of the Parmenides to be that hypothesis i shows that the Eleatic One must have been incorrectly formulated since its deduction - that is Plato's deduction, Parmenides' own deduction in his Way of Truth having been wrong - leads to absurdity, so that we are led to expect a corrected formulation of the One in hypothesis ii. That this new formulation, when its implications are drawn out by Plato, leads to the assertion of opposites of the One is not reason why this should be regarded as 'chaos', but points to

1. This shows that we are dealing with the same One as in hypothesis i, cp. Parmenides 137CD. See also page 227 note 2 above.
2. Ross, Plato's Theory of Ideas 95; cp. Robin, Platon 134:"The notion of relation was denied in i and led to chaos in ii"; cp. Journal of Philology XXIII.166:"It is difficult to suppose that Plato mixed up the positive and negative side of his doctrine in inextricable confusion." 3. Mind V.326. 4. Journal of Philology XI.308. 5. Classical Quarterly XXXVIII.106-7. 6. Page 229.

just that combination of opposites with which the dialogue opens.[1] If there seems to be nothing to choose between indiscriminate assertion and indiscriminate denial it is not Plato's fault, but our own incorrect interpretation of the denotation of the One. But this does not necessarily mean that the One here is exclusively the Platonic Idea. For if the One is taken to be the Idea of One,[2] or any one Idea, and the Others of hypothesis iii as other Ideas,[3] one might well despair when one finds that this leads to the conclusion given in that hypothesis - namely, that the One - the Ideas - have motion and increase and are in space and time.[4] For to interpret the One and the Others as Ideas sharing in space and time makes nonsense of Plato's Later Theory, even though one alleges that Plato had by this time abandoned the earlier separation of the two worlds of Ideas and of things, as does Taylor,[5] Liebrucks,[6] and Stenzel.[7]

What, then, is the denotation of the One and the Others, for it is certain that the Others mentioned in opposition to the One in hypothesis ii are the same entities as the Others of hypothesis iii. Surely if the One of hypothesis i is the Eleatic One, which has been sufficiently demonstrated above, and if that One is the Universe itself, which is generally accepted, then the One of hypothesis ii, which answers hypothesis i by giving a fresh and corrected formulation of the One, must be of the same nature, must be in fact that same Universe, and the Others are then its parts.[8] It is indeed the τὸ παντελῶς ὄν of the Sophist, which will be discussed later. The proof of this lies in the fact that this interpretation makes explicable the course of Plato's argument, as we shall now show.

That hypothesis ii was intended as the alternative but corrected formulation of the One, which hypothesis i had refuted according to the Eleatic conception thereof, appears from Plato's opening words:[9] "Let us return to the hypothesis from the beginning and see if it appears in a different light to us when we re-examine it." This One is defined as a One having Being, and as the unity of its Being can be distinguished from the being of its Unity, it has parts and so is a whole.[10] These parts, which surely mean concrete existents, are infinite in number since each part, as one existent, has both Unity and Being, and this Unity and Being again are each similarly subdivided, and so ad infinitum, so that the Existent One is infinite in number.[11] The same result is obtained if one considers the unity of the One in the abstract. This can be distinguished from its Being, and since the One is neither its Unity nor its Being,

1. The solution of this difficulty in the world of sense is given on page 234 below; cp. also page 242 sub fin.-243.
2. Classical Quarterly XXXVIII.105. 3. So apparently Cornford, Plato and Parmenides 208. 4. Skemp. The Theory of Motion in Plato's Later Dialogues 14; cp. Classical Review LV.76. & 170-2
5. Mind V.484. 6. Platons Entwicklung zur Dialektik 156-9 ~~xxxxxx~~
7. Plato's Method of Dialectic 147-8. 8. That this phrase, 'its parts', can be used here will appear below.
9. Parmenides 142B. 10. Parmenides 142B-D. 11. Parmenides 142E-3A.

this difference can be ascribed to the Other - a teaching which we are to meet again in the Sophist. From these facts it is deduced that there is 2 and 3 and so Odd and Even, from which Numbers are derived by multiplication.[1] This Jackson[2] interprets that a finite plurality must intervene between unity and plurality for knowledge to be possible, but actually Plato goes on to say that as Number is infinite in multiplicity there must be an infinite multiplicity of Being. Being must be distributed over the whole multitude of things and concurrently with it the One must be so split up.[3] All this probably means no more than that the parts of the One, the concrete particulars within the Universe, are infinite in number.

On the other hand, "inasmuch as the parts are parts of a whole, the One, as a whole, will be limited; for are not the parts contained by the whole?...and that which contains is a limit?"[4] As a whole, it has beginning, middle and end, and so partakes of figure, either rectilinear or round or a union of the two.[5] This refers to the Universe as a whole, not as in the previous paragraph to the parts constituting the Universe, and it rightly appears to be limited and of a certain figure, in contradistinction to its parts, which are infinite in number.

The same distinction between the Universe as a whole and its constituent parts lies behind the next pair of deductions. Firstly, the Universe can be regarded both as its parts in the aggregate and as the whole comprising these parts. As the former is in the latter the One is in itself, and what is in itself cannot move. Therefore, the One is at rest. But secondly, the latter cannot be said to be in the former, the whole is something outside of its parts, so that the One, as a whole, is not in its parts, but must be in another, and hence is in motion.[6] That is, as a whole the Universe rests, but its parts are in motion. Bury[7] has pointed out a fallacy in this argument, but he allows the general conclusions to be just.

The next set of antinomies[8] is rather complicated, but amounts to this. The Universe can be conceived either as the whole, or its parts, or both, or neither but in abstraction. As the whole over against its parts, which are the Others, it is other than the Others; as its parts, it is the same with the Others; as both, it is other than itself -the Universe as the parts is other than the Universe as the whole; and as neither, it is the same with itself, since the abstract notion of Unity cannot be other than the One. The argument is rather forced, but turns on no more than the distinction between the Universe as the sum total of things as a whole, as the aggregate of its constituent parts, and as an abstract conception.

1. Parmenides 143A-4A. 2. Encyclopedia of Religion and Ethics X.58.
3. Parmenides 144A-E. 4. Parmenides 144E-5A.
5. Parmenides 145AB. 6. Parmenides 145B-6A.
7. Journal of Philology XXIII.179-180. 8. Parmenides 146C-7B.

The next set of antinomies[1] is fundamentally dependent on the previous set of conclusions. Inasmuch as the One is other than the Others it is like the Others, since the Others are likewise other than the One. By a fallacious contrapositive[2], the One as the same with the Others is shown to be unlike the Others. As from its Sameness with and otherness from the Others it is shown to be like and unlike the Others, from its sameness with and otherness from itself it is thus like and unlike itself.

It is, I feel, unnecessary to follow up further deductions, except to notice that use is made of a long and involved argument[3] to show that the One partakes of Time, which again has a certain speciousness.[2] And the hypothesis, if the Appendix, as it is called, is dealt with separately, concludes with the words: "Then the One was and is and will be, and was becoming and is becoming and will become....And since we have at this moment opinion and knowledge and perception of the One, there is opinion and knowledge and perception of it....Then there is name and expression for it, and it is named and expressed, and everything of this kind which appertains to other things appertains to the One."[4] This is a fair enough conclusion of the condition of the One if interpreted as the Universe with all that it contains.

Appendix. The so-called Appendix differs from all the other arguments in that it combines two hypotheses, or at least it seems so to do. For it begins:"If the One is both one and many as we have described and is neither one nor many, and participates in time, must it not, insofar as it is one, partake at times of Being and insofar as it is not one, at times not partake of Being?"[5] The 'as we have described' clearly refers to the results of the second hypothesis, but that hypothesis did not show that the One was also neither one nor many. But as the first hypothesis led to this result, Liebrucks[6] interprets the Appendix as based on the Eleatic conception of Becoming as the passage from Not-Being as in hypothesis i to Being as in ii. But this is difficult: it is exceptional for one of the arguments of the Trope to be based on a synthesis of two separate hypotheses,[7] not to say fallacious, and further it implies that such was Plato's conception of Becoming, which can hardly be correct. Hence, I prefer Taylor's[8] interpretation that the Appendix deals with the same One as hypothesis ii, and to say that the One is one means it is not many, and to say that it is many means that it is not one. This is also preferable because, if the Appendix were a synthesis of the two hypotheses, it should also take into account that according to hypothesis i the One does not partake in Time.

1. Parmenides 147C-8D. 2. Bury, Journal of Philology XXIII.179-80.
3. Parmenides 152A-5A. 4. Parmenides 155D. 5. Parmenides 155E.
6. Platons Entwicklung zur Dialektik 233. 7. Cp. Wild, Plato's Theory of Man 237, that the Appendix is not a synthesis of i and ii
8. The Parmenides of Plato 157 and Mind VI.10 and 12.

The argument then goes on to state that "the One partakes and does not partake of Being at different times, for that is the only way in which it can partake and not partake of the same,[1] and this is explained by means of the conception of the ἐξαίφνης.[2] This confirms our interpretation of the One and the Others in hypothesis ii as referring to the Universe and its parts, for such a One as that described in the Appendix is clearly a particular.[3] Further, this seems to be Plato's answer to Zeno's antinomy to replace that offered by Socrates in terms of the Early Theory of Ideas which had been placed in jeopardy by Parmenides. Sensibles can partake of opposite attributes because the possession of opposite characters is possible in succession. The real problem is how the Ideas can partake of contraries since they are not in time. This problem is dealt with in the second leg, so to speak, of the Trope, to which we shall refer presently. But first it is necessary to complete the present investigation by turning to the remaining hypothesis of the first leg of the Trope.

Hypothesis iii. We have already stated that this hypothesis deals with the same Others as are mentioned, in opposition to the One, in hypothesis ii, namely, the parts of the Universe, which are not necessarily particulars, although it may be that the Appendix was intended to act as a bridge between the One of hypothesis ii and the Others of iii. If so, then as the entity there discussed was the sensible particular, it would seem that the Others of hypothesis iii would be the same. Hence, I do not think those commentators[4] are correct who interpret these Others as other Ideas. But on the other hand, I do not agree that they are exclusively sensible particulars.[5] The parts of the Universe can be both Ideas and sensibles, not to mention souls, and it is in this sense that I interpret them. So Cornford,[6] who allows the Others to represent the units of number, numbers as wholes, Forms, geometrical magnitudes or bodies in space and time, according to the context.

Except for the derivation of Numbers, all the conclusions that were made of the One in hypothesis ii are here made in respect of the Others, so far as the hypothesis goes. For what was found true of the One in relation to the Others must also be true of each of the Others considered as a unity in relation to other such entities. So, "the Others are other than the One inasmuch as they have parts; for if they had no parts they would be simply one....and parts as we affirm have relation to a whole...and the parts will be parts of the One, for each of the parts is not a part of the Many but of a whole."[7] That is, the parts of the Universe in the aggregate are

1. Parmenides 155E. 2. Parmenides 156D. 3. Shorey, What Plato Said 293. 4. Jackson, Journal of Philology XI.313; Liebrucks, Platons Entwicklung zur Dialektik 240. 5. Chen, Classical Quarterly XXXVIII.108-9; Wild, Plato's Theory of Man 218.
6. Plato and Parmenides 205. 7. Parmenides 157C.

related to the whole Universe as parts to a whole.

Just as the One of hypothesis ii was shown to consist of parts and each part again of further parts, so that the One was infinite in number, so here too, "If the Others have parts, they will participate in the whole and in the One...and the same argument holds of each part, for the part must participate in the One....and the things which are other than the One will be many; for if the things which are other than the One were neither one nor more than one they would be nothing."[1] The argument then goes on to elaborate this, and this is important because a similar position underlies hypothesis vii, as we shall see. "They do so (partake of the One), then, as multitudes in which the One is not present...And if we were to abstract from them in idea the very smallest fraction, must not that least fraction, if it does not partake of the One, be a multitude and not one?"[2] On the other hand, "when each several part becomes a part, then the parts have a limit in relation to the whole and to each other, and the whole in relation to the parts," so that as parts of the whole universe, the Others are limited.[3]

By taking together the Others as both limited and unlimited, as previously established, the Others are shown to be like both themselves and one another, inasmuch as they are affected in the same way, but unlike themselves and one another inasmuch as they suffer opposite affections.[4] In conclusion the Others are stated, without further proof, to be the same with and other than one another, both moving and at rest, and experiencing every sort of opposite affection.[5]

The above four hypotheses, which form the first half of the Trope, can be summed up as follows: 'Parmenides' had undertaken to investigate the implications of his own hypothesis, If the One is, and again If the One is not. The first four hypotheses deal with the former. This again entails a twofold investigation, the implications of this hypothesis in respect of the One, and its implications in respect of the Others. Hypothesis i shows that according to Parmenides' formulation of the One as the ἓν ἕν , the One is in fact nothing, not even one, and hypothesis iv shows that when the One is defined as a ἕν ἕν there can be no Others either. Hypothesis ii takes the One in a different sense as the ἓν ὄν , and in this sense the One has all possible attributes. The Appendix explains that this is possible because these attributes exist in temporal succession. In the same sense of the One, hypothesis iii shows that the Others also can have all possible attributes. In all four hypotheses what is denoted by the One is the Universe, and by the Others is meant the parts of the Universe, its Appearance. We turn now to the last four hypotheses where the implications are discussed of the hypothesis,

1. Parmenides 157E & 158B. 2. Parmenides 158C.
3. Parmenides 158D. 4. Parmenides 158E-9A. 5. Parmenides 159A.

If the One is not.

Hypothesis vi. The first four hypotheses dealt with the assumption, If the One is; the last four with the assumption, If the One is not. Of these, the first hypothesis demonstrated the Eleatic One as it should have been deduced, hypothesis two as it should have been formulated. Hence, it is reasonable to suppose that hypothesis six, which shows the results of the isolation of Not-Being,[1] likewise demonstrates the Eleatic Not-Being as it should have been deduced,[2] and hypothesis five as it should have been formulated.

So, then, hypothesis vi is the refutation of the conception of Not-Being as formulated by Parmenides, i.e. as having no share in Being at all. For, "'Not' signifies absence of Being, and What Is Not has in no sort of way or kind participation of Being. It neither perishes nor becomes, and so is not altered at all. So it cannot be moved and cannot stand. Nor is there any existing thing that can be attributed to it, neither small, nor great, nor equal; nor likeness nor difference either to itself or to others. Nor can knowledge or opinion or perception or expression or name or any other thing be attributed to it. It has no condition of any kind."[3]

Hence, just as hypothesis i showed that the One as formulated by Parmenides was unthinkable, so hypothesis vi shows that the Not-One, Not-Being, as formulated by Parmenides was likewise unthinkable.

Hypothesis v. The fifth hypothesis, as we have said, can be expected to give the corrected formulation of Not-Being, and this is in fact given in the preamble: "What is the meaning of this hypothesis If the One is not? Does it differ from this, If the Not-One is not? - It is the contrary. - What if one says, If Size is not, or If Smallness is not, or anything of that kind, surely it is clear in each case that one states what-is-not as something different? Thus here also it is clear that Not-Being implies difference from the Others. In the first place, then, one states a known fact in naming the One, whether as existing or as not existing, and in the second that it is different from the Others."[4] That is, when we deny the existence of the One, whereas Parmenides would have said that we cannot make a significant statement about such a non-entity, Plato asserts that we can; and the reason for this is that such non-existence does not mean that its subject does not exist at all, but that it is different from the present existent state of affairs. - If Size is not, implies that Smallness is, and If the One is not, implies that the Not-One is. The non-existence of the One, then, means that the One is different from the Not-One, and the Not-One is a known fact.

1. Cp. Classical Quarterly XXXVIII.111-2.
2. Hence I reject Jackson, Journal of Philology XI.324, that the Cynics are here alluded to, which in any case does not square with the text, since Jackson describes the Cynic position as only an infinity of things, whereas Parmemides 164B allows no perception.
3. Parmenides 163C-4B. (condensed). 4. Parmenides 160BC.

What does Plato mean by this? Plato uses in this connection the verb 'to be'- εἶναι - with its inflections. Its meaning at that time, certainly in Parmenides' day, was that of concrete or material existence. But he has just pointed out that the One can be an object of thought, a known fact, even if it does not exist as a material object. Plato, then, distinguishes two senses of the verb,[1] or rather two modes of existence, firstly what we might call substantial existence, which is here denied of the One ex hypothesi, and secondly being different - if the One does not exist substantially it can still be an object of thought as the contrary of the Not-One, just as we can deny Size and yet assert it is the contrary of Smallness. This seems to point to a distinction between concrete existence and meaning. So Wild,[2] although we need not as yet commit ourselves to his interpretation of this meaning as the pure and unsubstantial existence of Ideas as objects of Understanding:"When we say that multiplicity does not exist, we do not mean sheer nonentity: it is a mode of Being not material but not non-esse. Such are the Forms, the meaning by which we mean a thing."

This is explained further in Parmenides 162A, which can be made clear if we translate the verb 'to be' and its inflexions in different ways according to the meaning, thus:"The non-existent One must have the affirmation of Being Not-Being (τὸ εἶναι μὴ ὄν) as the bond of its non-existence (δεσμὸν τοῦ μὴ εἶναι), in order for it not to exist (εἰ μέλλει μὴ εἶναι), just as the existent One (τὸ ὄν) must have the negation of Not-Being (τὸ μὴ ὄν ἔχειν μὴ εἶναι), in order that it exist completely (ἵνα πλέως αὖ ᾖ)." The proof of this is given in the preceding statement, 161E-2A:"It needs to share in some way in Being, otherwise we could not truly say that the One is not, since if we speak truly we are obviously stating a reality... ...Consequently the non-existent One IS, for if it were not, but remitted its Being altogether insofar as it does not exist, then straightway it would exist." That is, Not-Being must be something since we can make the statement, the One is not. But if to say it is not meant that it had no sort of Being at all, that much reality which it has by virtue of which we can make the statement at all would be remitted. That is what Parmenides would have us believe, but Plato argues that if Not-Being remits all claim to Being, so far from this causing it to lack existence more completely, it actually implies its existence. For the statement The One is not = the Not-One is,[3] but if it remits all claim to Being, i.e. the Not-One is not, this = the One is,[3] so that this remission of Being actually implies its existence. Plato thus demands that to a denial of existence be added an affirmation of the Not-Being of the object in order to allow of its being a subject of discourse, and contrariwise a statement of existence must require the negation of its Not-Being,

1. Cornford, Plato and Parmenides 129. 2. Wild, Plato's Theory of Man 218 and 232. 3. Partial inverse.

thus:

Not-Being, τὸ μὴ ὄν.	Being, τὸ ὄν.
Its non-existence, τὸ μὴ εἶναι	Its existence, τὸ εἶναι.
Its affirmation of Not-Being, τὸ εἶναι μὴ ὄν.	Its negation of Not-Being, τὸ μὴ ὄν μὴ εἶναι.[1]

Therefore, Plato concludes,[2] "if Being (τῷ ὄντι) shares in Not-Being (τοῦ μὴ εἶναι) and Not-Being (τῷ μὴ ὄντι) shares in Being (τοῦ εἶναι), the One, since it is not, must share in Being in order to be stated as Not-Being."[3]

This corrects Parmenides in this way: Parmenides asserted the noneexistence of Not-Being and no more: Plato adds an affirmation of Not-Being as its meaning. The affirmation means that is "a known fact" and the Not-Being that is known is Difference - it is different from the Others. This is necessary in order to allow of the possibility of any significant statement concerning Not-Being. But Plato is silent as to the ontological ground of this meaning. We shall deal with this when treating the Sophist.

It remains to deal with the other conclusions made in respect of the non-existent One and the question of its denotation. This Not-One is like itself and unlike the Others,[4] both moves and rests, changes and does not change, becomes and perishes, and yet does neither.[5] The former conclusion, that it is like itself and unlike the Others, is just, since quâ meaning it must remain like itself and quâ Different it must be unlike the Others, but the other conclusions are not rigidly deduced. They turn on a shift in meaning. Its ability to change rests on its sharing in both Being and Not-Being, and from its ability to change follows its motion and its becoming and perishing. But it shares in Not-Being in the sense of non-existence, in Being in the sense of affirmation, which distinction Plato has himself drawn, but if Plato is serious about this dialectical exercise we must assume that, despite the fallacy, he meant the conclusion to hold true. The contrary attributes of rest and the exclusion of becoming and perishing are valid and follow directly from its mode of Being as meaning. But to arrive at any conclusion what is here denoted by the One which is not we must accept both pairs of contraries; for to dismiss the fallacious deductions is to imply that the whole hypothesis was not seriously meant. What, then, can be the nature of a One which assuming it does not exist, can be said both to move and to rest, Become and yet not Become?

1. The wording of the sentence following, 162B, makes one think that the text is corrupt and should read, in respect of the negation of the Not-Being of the Existent One, τὸ μὴ εἶναι μὴ ὄν, and Burges offers an emendation along these lines, but as he suggests <δεσμὸν ἔχειν> τοῦ εἶναι τὸ μὴ εἶναι ὄν which might be translated "has as the bond of its existence the negation of Being" which is nonsense, I cannot agree with him. 2. Parmenides 162B. 3. This is the basis of the contradictory opposites (e.g. Being and Not-Being) in which the Idea, as the meaning of particulars, shares.
4. Parmenides 161AB. 5. Parmenides 162 C-3B.

If it moves, it cannot be the Idea, for a motionless Idea does not move simply because its existence is denied; by the same token it cannot be the sensible particular if it is at rest - i.e. according to the doctrine of Flux which Plato accepted. These predicates are nonsense if applied to the bare notion of Unity. What remains is that this non-existent One is the Universe, just as the One of the first two hypotheses was the Universe. So far there is no change in the denotation of the One in the dialectical exercise. Let us examine the suitability of the Universe as the denotation of the non-existent One in hypothesis v with the attributes ascribed it.

We have seen that Plato distinguishes two characteristics of the hypothesis, If the One is not: firstly, one states a known fact in naming the One, irrespective of whether it exists or not. This is the meaning of the 'One', its affirmation of Not-Being. This One was defined in hypothesis ii as a whole of parts and on pages 232-3 it was shown that, as these parts were in the whole, the One was in itself and so rested. Further, that from its being both a whole and parts, the One was shown to be like itself, and we can add to this that such a non-existent One could partake in neither Becoming nor perishing. Secondly, this hypothesis, that the One is not, means that it is different from the Others, i.e. that this non-existent One is different from the Existent One, different in that it does not exist. This, however, does not mean that there is nothing at all, but only that the Universe does not exist as the whole embracing the parts, but the parts could still continue to exist, are in fact the Others. Hence, the deductions in hypothesis ii in respect of the parts taken in abstraction from the whole should hold good for the non-existent One of hypothesis v. Again, on pages 232-3 we saw that, inasmuch as these parts in the aggregate did not contain the whole, the Universe was in another and so moved. That is, grant the existence of the parts and there must be motion, even though there is no Universe. Further, from an analysis of the implications of such parts, taken by themselves, hypothesis ii deduced that the One was unlike these Others. And it is these parts that Become and perish. Hence, if there were no such existent as a Universe, but grant that sensible particulars existed - as otherwise there would be nothing at all as in hypothesis vi - one could still make the assertions about this non-existent Universe what its meaning is and that it differed from a Universe comprising these same parts if such existed, and by combining the implications of the notion of Universe (the whole) and what still would exist in the event of the non-existence of such Universe (parts abstracted from the whole), one could still say that this One was like itself and unlike the Others, both rests and moves, Becomes and does not Become, as we have just argued. Hypothesis v then examines the implications of the denial of the existence of a Universe embracing

sensible events in time and space, and shows we should still have the notion of 'Universe' and the existence of Becoming and perishing.

Hypothesis vii. Jackson[1] sees in this hypothesis a reference to Socrates' concepts, Plato showing that a rigid deduction of their implications leads to Opinion of variable classes and not to knowledge, which Bury[2] rightly dismisses as fanciful, but his own ascription of the reference to the Pythagoreans[3] is no better. What is described is something much more vague than Opinion and even vaguer than the imaginal content of sense-experience which Wild[4] discovers here. As in all the preceding hypotheses, what is here dealt with is the Universe, but from a very specialised point of view. In hypothesis i it was the Eleatic One without parts, in ii the new Platonic One as a whole with parts; in iii and iv it was the Others that were more particularly dealt with, the Universe as it appears to the senses; in hypotheses v and vi the implications were examined of the denial of the existence of the Universe, according to the implications respectively of Plato's new definition of Not-Being and of the Eleatic Principle of Contradiction. Here in hypothesis vii we return to the Others, the Universe as revealed to our senses, but 'the One' seems to have a new sense. As Taylor[5] says, "If we abstract from the world of perception its systematic unity, what appearance will it present?....i.e. if we fail to take it into account, not that it is denied." What results in fact has already been hinted at in hypothesis iii[6]:"The Others partake of the One as multitudes in which the One is not present....And if we were to abstract from them in idea the very smallest fraction, must not that least fraction, if it does not partake of the One, be a multitude and not one?" Here 'the One' is obviously Unity[7] and not the Universe, and it is this abstraction of Unity from the Universe as the Others, the Universe as revealed to the senses, that is elaborated in hypothesis vii.

The Universe, then, in the absence of any systematic unity, is thus described:"Each mass of them is infinite in multitude, and even if one tries to grasp what seems smallest, as in a dream it suddenly seems many instead of one and exceedingly large instead of very small, as compared with its subdivisions...Thus, there are many masses, each appearing one but not really so, if the One is not.... And while it seems very small in itself, it appears many and large as compared with each of the many and small....While limited as against another mass, it has in itself neither beginning, middle nor end, because when one at any time tries to grasp any of them in one's mind as an existent thing, preceding the beginning another beginning always springs up, and after the end another end is still left over, and in the middle true middles within, but smaller...It is just as if one stood a little way from a painting, all of it then appearing one

1. Journal of Philology XI.324 cp.313. 2. Journal of Philology XXIII. 166. 3. Op. cit. 183. 4; Plato's Theory of Man 218.
5. Mind VI.27. 6. See pages 234-5 above. 7. See this meaning on page 232 sub fin.

and the same and alike, but on approaching it b e comes many and different and unlike...Therefore, they are the same yet different from one another....,and moving with all possible motions yet stationary in every way, and becoming and perishing, and yet neither."[1]

Further discussion of the above description will be left over for the Synopsis which follows the next hypothesis.

Hypothesis viii. We have seen that hypotheses i and ii set out the condition of the Universe as an object of thought according to the Eleatic and the Platonic formulations of th e One respectively, and these are followed up in respect of the Universe as an object of perception in iv and iii; further, hypotheses vi and v give the implications of the Eleatic and Platonic assumptions of the meaning of Not-Being as applied to the denial of the existence of the Universe, whereas vii followed up the latter by giving a description of the world of Appearance in the absence of any kind of systematic unity. We expect, then, that hypothesis viii should give the results for the same abstraction of unity according to the Eleatic conception of unity. That is, as, for Parmenides, the One was the All, if there was no One there could be nothing at all, whereas hypothesis vii showed what there was in the absence of unity according to Plato's conception the reof - Unity was not the All, but there was also Being according to hypothesis ii and Not-Being or the Different according to hypothesis v. This means in effect that the Others of vii belong to the genus of Other, as Liebrucks[2] expresses it, but according to Parmenides' assumptions there could be nothing at all if the One was not - Parmenides erred by not taking into account the Different.

So hypothesis viii runs:"If the One is not, and the Others are different from the One, the Others cannot be one nor even many, since if many the One would be in them...Thus, the Others could be neither one nor many nor even appear one or many....nor is there any of Not-Being present in any of the Others....Therefore, there can be no opinion of what is not, nor any appearance on the side of the Others .....In a word, if the One is not, there is nothing at all."[3] Thus, there is not even Appearance according to the Eleatic postulate.[4]

Synopsis. The question here to be dealt with is what connection, if any, these eight hypotheses have with Plato's Later Doctrine of Idea-Numbers as attested by Aristotle. To start with, hypotheses i, iv, vi, and viii, have nothing to do with it. As has been shown above these concern Eleaticism alone. Hypothesis i gives Plato's deduction

1. Parmenides 164C-5D. 2. Platons Entwicklung zur Dialektik 251.
3. Parmenides 165E-6A.C. 4. Liebrucks, op. cit. 254, cp. Robin, Platon 137:"Hypothesis viii points to a nihilism that causes Eleaticism to founder," and Cornford, Plato and Parmenides 244: "Parmenides confused the Dyad with Non-Entity and so was unable to provide for a world of appearance."

of the One according to Parmenides' formulation thereof as without parts - it is thus a corrected deduction of the Eleatic One. It is meant to demonstrate that the One, as defined by Parmenides, so far from revealing the truth behind the Universe, is a contradiction in terms - to define the One as nothing else than one leads to the impossibility of even naming the One. Hypothesis iv complements this demonstration by showing that, according to the Eleatic postulate, not only can there not be a One, but there can be nothing else either, no world of Appearance. Hence, Parmenides' so-called Way of Truth was entirely erroneous, and his other Path, that of Not-Being, which Parmenides had denied to have any reality whatsoever, was equally erroneous. Hypothesis vi proves that there can be no knowledg opinion, perception, expression or name about Not-Being as conceived by Parmenides, so that, it is implied, he could not merely not have explained the nature of Not-Being so defined, but he could not have even named it. And hypothesis viii completes the investigation by showing that even if the ineffable Eleatic One did not exist there could be nothing in any case, not even Appearance, according to the Eleatic assumptions.

But one might object, How could a complete refutation of Eleaticism be put into the mouth of its founder, Parmenides? The answer lies in the other hypotheses. Hypothesis ii gives a deduction of the One as Plato considers Parmenides should have formulated it, as a whole of parts, and shows that such a One can be the object of thought, of opinion, or of perception. Hypothesis iii complements this by showing a similar condition to hold for the Others when the One has been thus redefined.- A Universe is possible both as the One (as the All), and as the Others (the aggregate of its parts, the world of sensible particulars and whatever else belongs to it.). Similarly hypothesis v redefines Not-Being as having as the bond of its non-existence the affirmation of its Not-Being - it is a something, and this something is the Different. Finally, hypothesis vii returns to the world of sense and describes what there would be even in the absence of any Unity. It seems quite appropriate to me that this doctrine should be put into the mouth of Parmenides if, as I have interpreted it, Plato understands it as a reformulated, a corrected Eleaticism.

One might go even further and show that these four constructive hypotheses were intended by Plato to resolve the problem with which the dialogue opens, for if Parmenides was wrong in saying that there is nothing else besides the One, and what is not this One (Not-Being) is nothing at all, then it becomes unnecessary for Zeno to support this position by refuting the existence of the Many. Plato now shows that Zeno's argument against the Many, that the Many combines contrary attributes, can be answered. Hypothesis ii shows that the very conception of the One as a whole of parts entails its

multiplicity, and hypothesis iii applies this to the Others - they too, Zeno's Many, like the One, are both same and different, like and unlike, rest and move, etc. Hypothesis v shows that even a non-existent One cam be said to be like itself and unlike the Others, to share in both Being and Not-Being, to rest and move, and to become and yet not become. And finally hypothesis vii shows that even in the absence of the One there is still the appearance of contrary characteristics. As the conclusion to the dialogue, Parmenides 166C, puts it:"Whether the One is or is not, itself and the Others are and are not, seem and do not seem, to be everything in every way both in respect of themselves and of one another." Thus, the combination of contrary attributes in any entity is a known fact, and so far from signifying self-contradiction is a necessary result of the constitution of the One as a whole of parts.

The whole Trope, then, is an essential part of the dialogue, and if it went no further than this, that it corrects Parmenides and answers Zeno, it would have been worth the writing. But as it belongs to Plato's Later Period, one expects to find in it more than suits its dramatic mise en scène exclusively. One expects to find in it some contribution or application to Plato's own teachings. In fact one looks for an answer to Socrates' challenge to remove the paradox of contrary attributes to the realm of Ideas, and it is hardly sufficient to say that, just as the One is necessarily many, so is every Idea also both one and many. One expects to find some hint as to the constitution of Ideas and things as the explanation of this combination in each of opposite attributes. In other words, we expect some indication of a modification of the Earlier Ideal Theory in the Trope. This question I propose to deal with in two parts, first, the constitution of sensibles, second, the constitution of Ideas.

The constitution of sensibles seems to be reflected or perhaps foreshadowed in hypothesis vii, with which I shall begin. Its position in the Trope corresponding to the Others of hypothesis iii and following after the investigation of the One that IS NOT in v and vi, indicates that it deals with the world as revealed by our senses. The particular aspect from which this is considered is that in which Plato deduces that it would be in the absence of any systematic unity. It is then revealed[1] as seeming very small in itself but appearing large as compared with its subdivisions, as limited as against another mass but when one tries to grasp any of its limits, preceding the beginning another beginning springs up, and after the end another end is still left over, and it moves with all possible motions and yet is stationary in every way, etc. It is, in fact, an indeterminate mass of possible qualities ranged as continua from the infinitesimal to the infinite degree of each. And a similar analysis was given in hypothesis iii[2]: if we were to abstract from

1. See page 240-1 above. 2. See page 235 above.

them in idea the very smallest fraction, must not that least fraction if it does not partake of the One be a multitude and not one? Hence, it seems to me that Plato now conceives the sensible world as constituted from a substrate of qualitative continua by their determination by means of a limiting factor having the nature of unity. So Brommer[1] and Cornford[2] have argued, naming this substrate the Unlimited. Whether they are correct in naming this substrate the Unlimited, which implies a connection with the Pythagorean element and perhaps with the later Unlimited of the Philebus, is something which needs to be discussed below, but it seems inevitable, according to the interpretation of the dialogue here adopted, that Plato now constituted sensibles from a substrate as described and a limiting factor with the nature of unity. As we know that this limiting factor of sensibles was the Ideas, each of which is not merely a unity but unique, I conclude that hypothesis vii testifies to the construction of sensibles from qualitative continua and an Idea, or at any rate it analyses existing sensibles into these two factors.[3] These two factors are put together, or at any rate seen in combination, in hypothesis iii, which shows that the sensible world, the parts of the One, must necessarily combine contrary attributes by reason of the very definition of the One as a whole of parts in ii.

We turn now to the question of the composition of Ideas. Of those critics who accept a constructive purpose in the Trope, there are broadly two camps: those who interpret the One of hypothesis ii as an Idea, and those who believe Plato has here abandoned his earlier dualism. As examples of the latter we might instance Taylor[4] that the ascription to the One of perception in 155D shows that here is no dualism, and Stenzel,[5] that the radical separation of two worlds has vanished. But such an interpretation runs counter to all other evidence and rests entirely on the inability to explain how the One can be an Idea and yet be an object of perception. This same difficulty makes it unacceptable that the One should be a separate Idea, the former view alluded to, which is held for example by Tocco,[6] that multiplicity is introduced into the Ideal Sphere and that this modification explains Aristotle's evidence about Idea-Numbers. But the One, in fact, is not the Idea of One nor the Idea in general, but the Universe, as has been shown above. Nor is Cornford's interpretation[7] above criticism, although along these lines. He says that hypothesis ii restores the possibility of the Pythagorean evolution of Many from the One: Limit and Unlimited follow immediately after the definition, then comes the evolution of Numbers; in 145AB

1. Mnemosyne XI.iv.289. 2. Plato and Parmenides 211,235,239.
3. But Liebrucks, Platons Entwicklung zur Dialektik 241, and Stenzel, Zahl und Gestalt 54, argue that there is no material substrate, since the Dyad is the IDEA of Other. But how can an Idea be the 'Dyad' as described in hypothesis vii? 4. Mind V.506.
5. Plato's Method of Dialectic 147.
6. Journal of Philology XXIII,165. 7. Op. cit. 135-9, 145-7.

we pass from Number to geometrical figure, and 145B-E gives the transition to physical body, as in the Pythagorean evolution. But the Pythagoreans derived Numbers from the Limit and Unlimited, whereas in hypothesis ii they are derived from One, Being and Other, and the 'Limit' and 'Unlimited' are not principles but attributes of which no further use is made.

To me there seem to be only two possible interpretations: either the One is the Universe as object of thought and no reference at all is intended to the constitution of Ideas, or the Ideas are included as some among the parts of this Universe, along with sensible things and perhaps souls as the other parts. I favour the latter since this accounts for the One being the object both of knowledge and of perception, both moving and resting. In this case, as every part of the One is said to consist of the same two ultimate elements as the One itself, namely Unity and Being, the Ideas can be expected to consist of Unity and Being; but sensibles also must be similarly constituted, since Plato draws no distinction between part and part. Now we have seen that hypothesis vii analyses sensibles into two factors, Unity and a substrate, and I believe that these represent the Unity and Being of hypothesis ii, the Being or substrate making possible the existence of sensibles, the Unity making them possible objects of opinion or perception - as single things. If this is so, then hypothesis ii hints at there being two factors also in Ideas, Unity by which they become possible objects of knowledge, and Being by which they exist as realities. But of the nature of this Being there is no further indication. However, from this dual constitution are drawn the various pairs of contrary attributes, such as that they are both one and many, which introduces multiplicity into the Ideal Sphere as a necessary condition of its existence. There is, then, some truth in Brommer's[1] contention that Numbers are generated in hypothesis ii from Even, produced by One and Being, and from the Other implicit in their conjunction; but I think he errs in equating[2] the One and Being taken together with the Great and Small on the grounds that in 153A the One is called the smallest number, and Being is Great since all things come from it. This leaves no place for the One as 'formal element', unless it is taken twice over!

We can conclude, then, that the Parmenides testifies to a crisis in Plato's thought when he discovered that his Ideas were open to grave objections. He felt that these difficulties arose from the current conception of Unity and Being along Eleatic lines, and undertook the task of doing Parmenides' work over again. This brought him to a new definition of Unity and of Being, or rather of Not-Being, which in turn led to a modified conception of the ultimate unities - the Ideas. But he seems at this point to have got no further than to analyse them into two factors- Unity and Being.

1. Mnemosyne XI.iv.266. 2. Op. cit. 270-1.

β) Plato's Later Dialogues.

The Sophist. The ostensible purpose of this dialogue is to define the sophist, but as this attempt has led to the definition of the sophist as sorcerer and mimic,[1] this raises the question of the possibility of appearance and untruth,[2] and the real purpose of the dialogue becomes a demonstration of the reality of Not-Being; for Parmenides had said that this would never be proved, that the real is not.[3] For appearance, as untruth, is unreal, and, according to the Eleatic postulate, Not-Being (the Unreal) is impossible, indeed ineffable.[4] To speak, then, of the sophist as a sorcerer and falsifier leads to these difficulties, and forces the Stranger to attack his 'father', Parmenides, by saying that Not-Being IS and Being IS NOT.[5] By means of this transition the dialogue turns away from the definition of the sophist to an investigation of Being and Not-Being commencing with a review of the theories of Plato's predecessors,

Here the Eleatic One is attacked to this effect.[6] Parmenides says that the One alone exists. Then it must be Being. Then it has two names, namely One and Being. But this is ridiculous if by hypothesis there is only one entity, for if the name is different from the thing, there are two things, and if the name is the same as the thing, then it must be the name of nothing, or, if of anything, then it must be the name of a name and nothing more.[7] Again,[8] the Whole is either the same as the One Being or different. Parmenides describes the Whole as a sphere, which has parts, whereas the Truly One cannot have parts, i.e. the Whole cannot be the same as the One Being. But if it is different, either Being, having the accident of the One, is both One and a Whole, or Being is not a Whole at all. If it is both a One and a Whole it is more than the One; but if it is not a Whole, it will be in want of itself since what is produced is always produced as a whole. Thus the Eleatic One is untenable.

This argument against Eleaticism bears a relation to the Parmenides.[9] Each of the two arguments rests, for its effect, on the assumption that the One has no parts -thus, in 244B-D One and Being can only be two names for one thing, which is shown to be absurd,

1. Sophist 235A. 2. Sophist 236E. 3. Sophist 237A.
4. Sophist 238A-C, cp. Jackson, Journal of Philology XIV.189, who points out that this conclusion agrees with that of hypothesis vi.
5. Sophist 241B-D. 6. Sophist 244B-D. 7. For the translation compare Cook Wilson, Classical Quarterly VII.52-3.
8. Sophist 244E-5D. 9. Jackson, op. cit. 193 and 216 note 1; Liebrucks, Platons Entwicklung zur Dialektik 188-190; and Cornford, Plato's Theory of Knowledge 222, agree in seeing the same conclusions here as in hypothesis i, but Ross, Plato's Theory of Ideas 98 and 105, interprets it as showing that extreme Monism entails its opposite as in hypothesis ii. But this hypothesis, while asserting that the All is One Being and proving it is either a sphere or some other figure, as in Sophist, differs in this that such a One is defined as a Whole with Parts, whereas the Sophist, following Parmenides, expressly denies this. As this is the assumption of hypothesis i, the connection must surely be with that hypothesis rather than with the second!

so is acted upon, there must be an Incorporeal that knows, that acts.[1] Hence, "Can we be persuaded that the Completely Real (τῷ παντελῶς ὄντι)[2] does not share in motion and life and soul and thought, neither lives nor thinks, but remains motionless and without mind, solemn and holy?"[3] This is clearly a rejection of Parmenides' conception of the One, the Universe, Plato asserting that just as the Materialists must admit the reality of Soul and of Forms, so the Idealists must admit the reality of Soul, so that Body, Soul and Forms constitute the whole of Reality, and Parmenides' solemn, motionless One must be replaced by a Reality which includes Soul, life and the possibility of knowledge. So in 249CD Plato sums up by saying that we cannot accept the conception of the All as Rest whether according to those asserting the One (Parmenides and his school) or according to those asserting many Forms (the Friends of Forms), nor the conception of the All as Motion according to the conception of those asserting Flux, but it must be both moving and unmoved. We have come, then, to Plato's new theory of Being[4], resembling the position of hypothesis ii of the Parmenides, that the Universe both moves and rests, and the ontological basis of this conception is worked out in the following account of the κοινωνία of Kinds, to which we now turn.

Plato starts[5] by pointing out that Motion and Rest are contraries and each exists, but that since both do not move and both do not rest, their existence, Being, must be a third something which accounts for the existence of each Motion and Rest without being either of them. Being, then, neither rests nor moves, but shares in both Rest and Motion. Now this analysis of Being, Rest and Motion is clearly made from the preceding discussion of the historical conceptions of Reality, where Motion characterised such conceptions as that of Heraclitus, and Rest the noëtal content of the Universe of Parmenides and of the Friends of Forms. Hence, by Being Plato here means the sum total of Reality, the Universe, and by Motion he means the world of sense, perhaps including Soul, and by Rest the world of Forms. The Universe, then, includes both sensibles and Forms, both Motion and Rest, which was in fact the conclusion reached in the second and third hypotheses of the Parmenides.[6]

That Plato indeed had the Parmenides in mind and intended the following account of κοινωνία to be interpreted as a commentary on the conclusions of that dialogue is shown by the next passage, Sophist 251AB: "Let us recall in what way we call the same thing at any time by many names. /...We call a man by many names, specifying his different colourings, shapes and sizes, his virtues and vices, in

1. Sophist 248A-D. 2. Cp. Page 231 above. 3. Sophist 248E-9A.
4. Compare Solmsen, Plato's Theology 80, that here Plato has glided over from one conception of Being - Ideas - to another - Cosmos.
5. Sophist 250A-C. 6. See page 234 sub Hyp. iii. Compare Ross, Plato's Theory of Ideas 242, that Rest = the Ideas, Motion = other things.

all of which cases and ten thousand others we not only say he is a man but that he is good and an infinity of other things, and similarly in the case of other things we call each of them many with many names.....But the late-learners assert it is impossible for the Many to be one or the One many..." With this compare Parmenides 129D:"If one undertook to show that such things as stones, logs and the like were both one and many, not however that the One was many or the Many one, he would say nothing marvellous." Just as the Trope was intended to be the answer to Socrates' challenge, to show that the world of Forms could share in contraries as well as the world of sense, so here in the Sophist the following account of κοινωνία will counter the assertion of the Late-learners by giving the ground of the ability of the Ideas to share in contrary attributes.

For this purpose Plato picks out some of the widest Kinds to see how far they communicate, explicitly stating that he has no intention of being exhaustive,[1] but makes a choice of Being and Not-Being so as to understand them better within the limits of the investigation, viz. to show that Not-Being in a way IS.[2] The first of these Kinds are, as has been already determined, Being, Motion, and Rest. Motion and Rest are shown to be exclusive but Being embraces them both.[3] As each term is the same with itself but different from all the others, we further require a fourth and a fifth Kind, Same and Other.[4] This, then, is not only an example but also the explanation of the Ideal World's sharing in opposite attributes, for "We must agree that Motion is both the same and not the same. For when we say it is the same and not the same, we do not mean in the same way, but it is the same at one time by sharing in the Same, and at another time it is not the same by communicating with the Other."[5] Thus, any Idea shares in opposite attributes in the same way as, in Parmenides, Socrates had asserted that any thing shared in opposite attributes, by partaking in opposite Ideas, whether these be Likeness and Unlikeness or Same and Other. But let us pass on to the crux of the problem, Being and Not-Being.

Since Motion has been agreed to be other than Being, one could say that Motion IS NOT, but yet it IS since it shares in Being.Thus, of necessity Not-Being runs through Motion and through all the Kinds For the nature of Other in all cases makes each thing other than Being and so each IS NOT, and again by sharing in Being each IS.[6] and Being itself was said to be other than the other Kinds, and in that respect IS NOT. Thus, when we say 'Not-Being' we assert something that is not the contrary of Being but only what is other than Being.[7] But this is the opposite of what Parmenides had said, and the quotation given in 237A is repeated here.[8]"For we have shown not merely

1. "Let us select A FEW of those which are reckoned to be the principal ones." 2. Sophist 254B-D. 3. Sophist 254D.
4. Sophist 254D-5E. 5. Sophist 256AB. 6. Sophist 256DE.
7. Sophist 257AB. 8. Sophist 258D.

that Not-Being IS, but in what its nature consists; for by showing that the nature of the Other exists and is distributed over all existents, we have made bold to say that that part of each entity opposed to Being is really Not-Being."[1]

The contradictions of sense, then, hold good also of the world of Ideas because the Ideas are not each by themselves but communicate one with another so that each is the same as itself and is different from the others, and the ultimate ground of this difference and of the nature of Not-Being (as when one says A is not B) is the nature of the Other.

In hypothesis v of Parmenides, Being was shown to exist and to have as the bond of its existence the denial that it was Not-Being. So here we see that, as the same with itself, Being exists, but by its sharing in the Other it is not Not-Being. Again, Not-Being did not exist but had as the bond of its non-existence its affirmation of its Not-Being. So in Sophist, Not-Being is different from Being, but is the same with itself as sharing in the Same. The Sophist, then, gives the all-pervasiveness of Same and Other as the ground of the existence of Being and its difference from Not-Being and the non-existence of Not-Being but its sameness with itself, as implied in hypothesis v of Parmenides. Thus, the Other of the Sophist is not the same thing as the Not-Being of the fifth hypothesis,[2] but is its ontological ground.[3] Plato, however, while starting out from an investigation of the ontological meaning of Being has passed on to the sphere of logic, as is shown by two considerations. Firstly, the main purpose of the dialogue is logical - to find the sophist by means of the Method of Division - and that Plato bears this in mind is shown by the passage immediately preceding the κοινωνία τῶν γενῶν and anticipating it, 253DE, where the mark of the Dialectician is described as the ability to know which Kinds communicate and which do not. Secondly, having arrived at the meaning of Not-Being, Plato immediately turns to apply it to opinion and discourse, 260B, in order to see if Falsehood is possible, and so to define the sophist, thus completing the task initially undertaken. Hence, this analysis of Being and Not-Being was intended by Plato first and foremost to serve in Dialectics, to have a logical application. But this does not mean that it has no ontological application at all. If for Plato truth lay in an externally existent world of Ideas and was discovered by Division, that Division of concepts would surely reflect a similar articulation in the hierarchy of Ideas, would be

1. Sophist 258DE. 2. So Tate, Classical Review LV.76, states that it is a hasty conjecture of Grote's that the Not-Being of hypothesis v = the Different (Other) of the Sophist.
3. Cherniss, Aristotle's Criticism of Plato 46, Riddle of the Early Academy 54, denies that the schemata of Diaeresis portrayed any relational arrangements in the world of Ideas, each Idea whether a 'genus' or a 'species' being a distinct Ideal unit of independent nature; Ross, Plato's Theory of Ideas 239-241, counters this.

grounded, in fact, on objective relationships among the Ideas themselves. Hence, while it is not the main, perhaps not even a secondary purpose of the Sophist to cast any light on the constitution of Ideas and things, if, as has been argued, the analysis of Being and Not-Being discussed above had any objective ground at all, it must by that very fact be useful for the reconstruction of Plato's beliefs about the constitution of the Real.

The Elements of Ideas. We have seen that in Parmenides sensibles were analysable into the Others of hypothesis vii, a mass of indefinite qualitative continua, and a principle of unity there supposed to have been abstracted, and which was doubtless the Idea having the same name in any particular case. Further, hypotheses ii and iii implied that the Ideas could be analysed correspondingly into a principle of unity and a substrate called, there, Unity and Being respectively. But no further description was given of these principles. Now the Sophist has been shown to bear a relationship to the Parmenides. It refers back to it specifically at 217C and implicitly at certain other points mentioned above, and serves in these respects to corroborate and elaborate its findings. It seems then justifiable to interpret the Parmenides, or rather parts of it, whether or not Plato at the time of composition had worked out his new Theory of Ideas, as giving a provisional statement of an analysis of the structure of Ideas and of things, as stated above, and to find in the Sophist further information in this respect. This information, however, does not take us far, and it is difficult to determine whether this is because Plato had not fully worked out the analysis but was feeling towards a more complete statement, or whether, since the subject-matter of the Sophist was logical rather than ontological, and the work was a dialogue and not a systematic treatise, Plato did not feel himself bound to go beyond the strict limits of the subject in hand. However that may be, this information, such as it is, seems to be as follows.

My interpretation depends for its effect on whether there are five or six Kinds in the Sophist. Plato numbers only up to five, and seems to imply that Not-Being and Other are synonymous, that Not-Being is simply that part of Other opposed to Being. But I maintain that he held Not-Being to have been a sixth Kind, and led up to this conclusion by the long argument in 255E-6E, which I abbreviate as follows: "First (let us start with) Motion, that it is in all ways different from Rest. Therefore, it is not Rest....Again, Motion is different from the Same, and therefore is not the Same; but it is the same by partaking of it.....Motion is different from the Other, just as it is other than the Same and Rest. Therefore, it is not the Other, and yet is other according to the same argument as before.... May we then confidently assert that Motion is different from Being, and thus Motion really is not Being, and yet is being since it

it shares in Being? Therefore, of necessity Not-Being IS, in respect of Motion and all the Kinds." Plato's point seems to be that just as Same and Other are contraries, so Not-Being is a necessary sixth term (besides Motion and Rest) to serve as the contrary of Being. For Motion is here shown both to be and not to be the Same, Other, and Being. It is each because it partakes of each on account of the pervasive nature of these Kinds; it is not the Same because it partakes of Other, it is not the Other because it partakes of the Same, therefore, it is not Being because it partakes of Not-Being. Being, then, inasmuch as it partakes of the Same, is the same with itself, is Being; inasmuch as it partakes of the Other, is different from itself, is Not-Being. We have, then, as some of the all-pervasive Kinds (there are doubtless others[1]) the two pairs of contraries, Same and Other, Being and Not-Being.

Applying this to the analysis of the Idea in the Parmenides, we distinguish as its factors Unity and Being, but Being is shown in hypothesis v to share in Not-Being, and the Sophist goes further by showing that this is because Being is pervaded by the pair, Same and Other. Hence, the Idea is constituted by two factors, firstly Unity, secondly Same and Other, Being and Not-Being. But the Sophist is silent in respect of the composition of sensibles. For this we must turn to the Timaeus.

1. Compare page 249, note 1, above.

The Timaeus. The Receptacle is not Empty Space. It is often assumed[1] that the Receptacle in the Timaeus is Empty Space, and consequently that this dialogue makes no use of what is commonly called Matter, indeed that there is no room for Matter in the cosmology of the Timaeus.[2] But, as Cornford[3] points out, "'Matter' appears sometimes as an indeterminate substance, sometimes as mere space. Elsewhere it seems to be reduced to a logical principle of Otherness or multiplicity...." There is no denying that while the Receptacle is sometimes described as Space, it is also described as an indeterminate substance, and whereas it would be foolish to interpret the latter as Matter in Aristotle's sense of the word - i.e. that which was this particular potentiality and which, having become it actually, is potentially the contrary of its present determination[4] - it must therefore be denied that, if this description of the Receptacle as an indeterminate substance is really meant by Plato, ~~denied~~ it is empty space; and if it is filled space it is merely a question of vocabulary whether it is to be called 'Matter' or something else. The interpretation which I have adopted here is the opposite of that of the critics cited: they accept the mention of the Receptacle as Space as Plato's true meaning and ignore his other references to it as an indeterminate substance; I take its description as an indeterminate substance as Plato's true meaning and regard it as only secondarily if not provisionally Space. For the Receptacle is described as Space only in Timaeus 52, and this in respect of a particular argument, whereas its other description as an indeterminate substance is more frequent. Let us investigate this question.

The essence of my interpretation is that the Timaeus does not give an outright exposition of Plato's beliefs in the matter here discussed as distinct from his accounts of transmigration, physiology, etc., but deduces progressively and step by step what he believed was the truth of the matter. This explains why the conception of Ideas at the opening of the discourse of Timaeus reflects Plato's earlier conception and not obviously that of the Parmenides or Sophist, and this also places the description of the Receptacle as Space in its right perspective, as will be seen. This is hardly capable, however, of proof, since the speaker Timaeus never says as much, but it is in keeping with Plato's general method,[5] as is well exemplified in the Theaetetus, where he investigates the nature of knowledge by starting out from the current supposition that it was

1. So for example van der Wielen, Die Ideegetallen van Plato 104, Cherniss, The Riddle of the Early Academy 22, Cornford, Plato's Cosmology 181, and other references cited in note 2 below.
2. So van der Wielen, op. cit. 182 & 192; Burnet, Greek Philosophy 343-4; Taylor, A Commentary on Plato's Timaeus 323 & 380; Cherniss, op. cit. 23; Stenzel, Zahl und Gestalt 123.
3. Cambridge Ancient History VI.ix.IV.329. 4. Cp. Cherniss, op. cit. 22 cited in note 1 above. 5. Shorey, What Plato Said 515 note ad Meno 86B:"Plato limits his dogmatic assertions to a minimum."

identical with sensation, that is, he proves the higher nature of knowledge not from the assumptions of his own Theory of Ideas but by leaving the Ideas out of account entirely.

Timaeus' discourse, then, opens[1] with nothing more than the assumption of Ideas and sensibles, as is obvious from their respective descriptions, which indeed imply the 'crude' position of the Republic[2]: we must distinguish "That which always is and has no becoming...and that which is always becoming and never is: that which is apprehended by intelligence and reason is always in the same state, but that which is conceived by opinion with the help of sensation and without reason is always in a process of becoming and perishing and never really is." The next step is to deduce that conception of the Cause as Demiurge or Creator which Plato had made use of in Republic X.597A, thus:"Now everything that becomes or is created must of necessity be created by some cause, for without a cause nothing can be created....(And the world was) created, I reply, being visible and tangible and having a body and therefore sensible, and all sensible things...are in a process of creation and created. Now that which is created must of necessity be created by a cause."[3] Plato, then, here starts out from the assumptions of the Republic - sensible things, in particular the world, are created by the Demiurge after the pattern of the Ideas.

The argument then goes on to deduce the nature of the creative activity of the Demiurge from the assumption of his goodness, starting, "God desired that all things should be good and nothing bad, so far as this was attainable. Wherefore also finding the whole visible sphere not at rest, but moving in an irregular and disorderly fashion, OUT OF DISORDER HE WROUGHT ORDER, considering that this was in every way better than the other...In framing the universe he put intelligence in soul, and soul in body, that he might be the creator of a work which was by nature the fairest and best."[4] The rest of the account of the works of Reason deals chiefly with the World-Soul, the four classes of living creatures, and Transmigration, with which we are not here concerned, and in respect of what might be called Physics, Plato does not say much more than what was already accepted by contemporary Greek philosophy,[5] namely, that the Universe, if corporeal, is also visible and tangible; to be visible, it must have Fire, to be tangible, Earth. As solid bodies require two means to be compacted, between Fire and Earth was placed Air and Water.[6] This goes no further than

1. Timaeus 27D-8A (Jowett). 2. So Bury, Journal of Philology XXIII. 197. 3. Timaeus 28A-C. 4. Timaeus 30AB. 5. Cp. Conacher, Philosophy XVIII.101:"The early account shows the conventional Greek account of the transformation of elements as before Diakosmêsis; but to give a scientific account, to make knowledge of sensibles possible, Plato sees the need to posit a third eidos,the Receptacle, into which and from which the appearances of sense pass." 6. Timaeus 31B, 32B.

to supply a teleological explanation of the accepted four Roots. And after the Universe had been thus brought to order, its shape was that of a sphere, having its extremes in every direction equidistant from the centre, the most perfect and most like itself of all figures,[1] recalling Parmenides' One, and one of the possible shapes deduced for the One Being in the Parmenides, hypothesis ii.

Having reached this point, that of the assumption of two forms, Ideas and sensibles, implies a cause, the Demiurge, and that the work of the Demiurge was to bring order to disorder, as we have said Plato further develops his subject in these terms:"Thus far in what we have been saying, with small exceptions, the works of Intelligence have been set forth; now we must place by the side of them in our discourse the things which come into being through Necessity.... Wherefore we must return again and find another suitable beginning, as about the former matters, so also about these. To which end we must consider the nature of Fire and Water and Air and Earth, such as they were prior to the creation of the heaven, and what was happening to them in this previous state."[2] As the bulk of the rest of this second portion of the discourse is concerned with physics, with the sensible world and the four Roots, it is to this that Plato particularly refers when he says that he will discuss the operations of Necessity, and as he says that this entails the consideration of the nature of the four Roots prior to the creation of the heavens, he would seem to be returning to 30A, where the Demiurge is said to have found the whole visible sphere moving in an irregular and disorderly fashion, and out of disorder he wrought order. Such a state of affairs is in fact dealt with later on, but before Plato is able to explain this properly he requires another principle than those already assumed in the opening part of the discourse. There, in order to explain the works of Reason, besides Ideas and sensibles was required a Cause; here, in order to explain the works of Necessity, is required besides Ideas and sensibles a third form. In his own words:"Then we made two classes, now a third must be revealed. The two sufficed for the former discussion: one, which we assumed, was a pattern intelligible and always the same; and the second was only the imitation of the pattern,generated and visible. There is also a third kind, which we did not distinguish at the time, conceiving that the two would be enough. But now the argument seems to require that we should set forth in words another kind...the Receptacle and Nurse of generation."[3] This Receptacle, then, is required in order to explain the nature of things before Creation; it is not to be assumed but to be demonstrated, and after a preliminary warning, making use of the analogy of figures of gold, that Empedocles' Roots are not the ultimate principles that they were claimed to be, Plato goes on to deduce the requisite

1. Timaeus 33BC. 2. Timaeus 47E-8B. 3. Timaeus 48E-9A.

third class:"Wherefore also must we acknowledge that there is one kind of Being which is always the same, uncreated and indestructible ....And there is another nature of the same name with it and like it to it, perceived by sense, created and always in motion.....And there is a third nature, which is Space, and is eternal, and admits not of destruction, and provides a home for all created things:..... which we beholding as in a dream say of all existence that it of necessity must be in some place and occupy a space, but that which is neither in heaven nor earth has no existence...For an image, since the reality after which it is modelled does not belong to it, and it exists ever as the fleeting shadow of some other, must be inferred to be in another, grasping existence in some way or other, or it would not be at all."[1] That is, if we posit two kinds, Ideas and sensibles, and if sensibles are the copies of the Ideas, then since sensibles, as copies, can get no reality from the Ideas their patterns, they must find their reality in something else; and since we can visualise nothing as real which is in no place, it must be Space in which sensibles find what reality they have.

The Receptacle is Filled Space. This is where the Receptacle is described as Space - as part of the argument for the necessity of a third form besides Ideas and sensibles, and as the argument follows the line of reasoning that sensibles, as copies of Ideas, must be copied IN something, it is only natural that this third form should be described as Space. But this does not mean that this is Plato's last word on the nature of the Receptacle. Space meant for theGreeks, at least after Empedocles' day, Not-Being, and Absolute Not-Being at that. Plato, it is true, had shown that Not-Being had a relative sense, the Other. This he described in hypothesis vii of the Parmenides, to which we shall refer below. But Plato's Demiurge does not fashion the images of the Ideas in empty space, he does not create something out of nothing: it has already been seen[2] that he merely BRINGS ORDER TO DISORDER. And so Plato continues, almost immediately after the passage quoted:"The Nurse of generation, moistened by water and enflamed by fire and receiving the forms of earth and air, and experiencing all the affections which accompany these,presented a strange variety of appearances."[3] And after giving a description of this in terms resembling the Vortex of the physical philosophers, he goes on to say:"At first they were all without reason and measure. But when the world began to get into order, Fire and Water and Earth and Air had only certain faint traces of themselves and were alto-

1. Timaeus 52A-C. Hackforth, Classical Quarterly XXXVIII.39, gives a translation which better brings out the force of the argument: "Seeing that for an image, inasmuch as the very purpose for which it has come into existence is to present, not itself, but something else which it presents by way of continual motion, it is accordingly appropriate that it should occur in something else, clinging in some sort to existence on pain of being nothing at all."
2. See quotation on page 254 above. 3. Timaeus 52DE.

gether such as everything might be expected to be in the absence of God: this I say was their nature at that time, and God fashioned them by forms and numbers."[1] That is, prior to Creation, as in 30A, there was not Nothing, Empty Space, but an irregular and disorderly motion, a strange variety of appearances, certain faint traces of Fire and Earth, etc., without reason and measure, Filled Space in fact, which disorder the Demiurge brought into order, fashioning them by forms and numbers. What is meant by these forms and numbers we shall presently see, but first let us turn back in the Timaeus to the passage skipped in the above resumé.

As an illustration, not of the spatiality of the Receptacle, but of the fact that the Receptacle alone is entitled to the designation of 'this' or 'that', whereas the so-called four Roots[2] are not 'this' or 'that' but merely 'such',[3] Plato supposes "a person to make all kinds of figures of gold and to be always transmuting one form into another - someone points to one of them and asks what it is. By far the safest and truest answer is, That is gold; and not to call the triangle or any other figure which is formed in the gold 'these' as though they had existence, since they are in the process of change while he is making the assertion."[4] From this is deduced that "the natural recipient of all impressions is stirred and informed by them and appears differently from time to time by reason of them. But the forms which enter into and go out[5] of her are the likenesses of real existences modelled after their patterns in a wonderful and inexplicable manner, which we will hereinafter investigate."[6] Hence, the Receptacle "is formless and free from the impress of any of those shapes which it is hereafter to receive from without."[7] The passage concludes by returning to the true nature of the four Roots:"Fire is that part of her (the Receptacle's) nature which from time to time is enflamed, and Water is that which is moistened, and...the Mother substance becomes Earth and Air insofar as she receives the impressions of them."[8] The discourse then goes on to distinguish Ideas and Becoming and the need for a third class in which the latter can appear as copies of the former.

How can this be a description of Empty Space? The sole feature which might be taken as corroborating this is the formlessness of the Receptacle, but this formlessness seems to mean not total absence of form but indeterminateness of form. Gold is hardly a good example of Empty Space since it is substantial. The triangle may be modelled IN the gold, but after all it is formed OUT OF the gold, and it is as a substance rather than Space that the gold can be said to be 'this'. True, the alternative designation of the

1. Timaeus 53AB. 2. I use this term in order to avoid the more usual term 'elements', which I reserve for the constituents of any entity. 3. τόδε, τοῦτο and τοιοῦτον respectively.
4. Timaeus 50AB. 5. εἰσιόντα and ἐξιόντα.
6. Timaeus 50C. 7. Timaeus 50E. 8. Timaeus 51B.

Receptacle as the Mother in Timaeus 51A has a purely spatial connotation, but this is a metaphor which seems to have been used not so much to point any special significance as to form part of the more elaborate metaphor of Mother, Father and Child in 50D. If we were to take it literally to corroboate a spatial connotation, why should 'Father' not be similarly pressed to argue that the Forms, thereby symbolised, have that generative power natural to the sire? But that the Receptacle is indeed Filled Space[1] appears from the conclusion of this digression, 51B quoted above, where the Receptacle is described as being variously and at various times enflamed and moistened, and appearing like Earth and Air, which is just that disorderly appearance, those faint traces, which characterised the third from prior to Creation.[2] We have seen that the work of the Demiurge was to bring order into this disorder by means of forms and numbers, and this was again hinted at in 50C as the 'wonderful and inexplicable manner' in which the likenesses of real existences, the εἰδόντα, enter into and go out of the Receptacle. The forward reference here can only refer to the composition of the Roots by means of triangles[3] which is described and applied to Transmutation in 53Cff. This account is too well known to require repetition, and I shall simply state here that it is obvious that the Forms and numbers of 53B and the εἰδόντα of 50C are these triangles, which are put together to make up the four regular solids. Further, I believe it is wrong to say that Plato made no distinction between the geometrical solid, the tetrahedron, and the physical body, Fire, and so for the other Roots mutatis mutandis - a view which is required by the interpretation of the Receptacle as Empty Space - for this would mean that, for the pre-Cosmic Vortex and other similar descriptions of the Receptacle referred to above to have had any faint traces at all, any part enflamed or moistened, these tetrahedra and cubes, etc., would have had to be in the Receptacle before the Demiurge brought this disorder to order. But this ordering can be nothing except the application of the regular figures to the existing disorder in order to bring them into order. But if the Demiurge brought order to the existing disorder by the introduction of these regular figures, by the introduction of forms and numbers as Plato

1. Compare Frank, Plato und die sogenannten Pythagoreer 96:"Nothing remains of body except its empty space AND ITS OCCUPYING FORCE"; op. cit. 99:"Our world is formed when the lawless motion filling eternal space is shaped by the motionless Ideas"; Milhaud, Les Géomètres Philosophes de la Grèce 292-3: Space with reservations, full space; Cornford, Plato and Parmenides 15:"Plato adds qualities as existing in Chaos"; Ritter, The Essence of Plato's Philosophy 266-7:"Filled Space or rather space-filling matter"; Robin, Platon 234:"This Receptacle is a sort of qualifiable space and its qualifications consist in configurations caused by the Ideas. To this first act is added a second act, organisation by Thought, and this gives the Cosmos." 2. See pages 256-7 above. 3. Compare the mention of a triangle as one of the figures in the gold, 50AB.

plainly states, then some part at least of the sensible nature of Fire must have come from the pre-existing state of being enflamed and only a part of that nature from its configuration as a tetrahedron.

I conclude, then, that in respect of the four Roots, Plato analyses sensibles into two elements, of which one is here called the Receptacle, and is described in 30A as a disorderly and irregular motion, has no natural form but appears differently from time to time in 50C, is enflamed and moistened etc. in 51B and 52D, with certain faint traces of the Roots at 53B, and is described in terms resembling the Vortex of the physical philosophers at 52E-3B. This seems to me to agree exactly with the description of the Others in Parmenides, hypothesis vii,[1] where Plato envisages the sensible world when the One is abstracted, except that there the qualities of the Others are not qualitative like the being enflamed and moistened of the Receptacle, but quantitative, in accordance with the choice of contraries adopted in the Parmenides; themselves doubtless borrowed from Zeno. There "each mass of them is infinite in multitude, and even if one tries to grasp what seems smallest, as in a dream it suddenly seems many instead of one and exceedingly large instead of very small....and moving with all possible motions yet stationary in every way, and becoming and perishing, yet neither."

But what is the other element in the Timaeus that brings order out of disorder, 30A, the εἰδόντα of 50C which are described as likenesses of real existences modelled after their patterns, the forms and numbers of 53B by which God fashioned the Roots? They are clearly the four regular figures built up from triangles, as described in 53Cff. These are not the unique Ideas of Tetrahedron etc. but copies thereof, since they are many. But this does not mean they are the Mathematicals, τὰ μεταξύ, as Mabbott,[2] Adam,[3] Ross in his earlier work,[4] and Field[5] have stated, since they are not perfect exemplifications of Ideas but only close approximations to them,[6] and none of our evidence suggests that Mathematicals played any part in the generation of sensibles.[7] Hence, it is copies of the Ideas that act as the element of order in the disorder of the sensible qualities making up the Receptacle that gives rise to the particular sensible existences - tetrahedra in the case of Fire, and mutatis mutandis. Just where the Idea of Fire comes in, asserted at 51B-E, Plato does not say, nor is it possible to surmise. However that may be, these copies of the Ideas which act as the limiting element in sensibles seem to be Plato's answer to the difficulty raised in Parmenides 131Aff, how the Idea could be in things, whether by being divided or by being multiplied: it does neither, but its copies are present, one in each sensible particular, and these copies

1. Cp. Cornford, Plato & Parmenides 240; Ritchie, Plato 116.
2. Classical Quarterly XX.75. 3. Republic of Plato II.161.
4. Aristotle's Metaphysics I. 168. 5. The Philosophy of Plato 141. 6. Ross, Plato's Theory of Ideas 224. 7. Ross, op.cit.223.

copies, as copies of the Idea, can be said to be each a unity, such as the One which was abstracted in hypothesis vii. So far then as the constitution of sensibles is concerned, the Timaeus seems to me to agree perfectly with the Parmenides - concerning the composition of Ideas, however, the Timaeus is silent.

It might, however, be objected that this interpretation makes a copy of the Idea the formal element of sensibles, whereas Plato says it is the sensible itself that is the copy of the Idea. That is so, but there is a distinction. The sensible is such a copy by virtue of its formal element; this formalelement can only be such a copy when it is imprinted in the Receptacle, when it becomes the sensible itself. As the Timaeus does not go into this and affords no exact terminology in this question, it is inadvisable to take the matter further than this at the present juncture, but it will be shown on page 269 below what is the true nature of this formal element, and a terminology will be made use of there which will be borrowed from a statement in the Philebus in this connection. But until the Philebus has been discussed, it would be premature to make use of its terminology, and so for the present I shall leave the matter as it stands - the εἰδοιόρτα or 'forms and numbers' which act as formal elements are copies of the Ideas,- but with this proviso, that this is purely metaphorical, is provisional, and will be modified in due course. For the Timaeus does not go back to first principles:"I will not now speak of the first principle or principles of all things"[1]- the Timaeus is only a 'likely account'. We can, then, go no further than this, that hypothesis vii resolves or analyses sensibles into an element of unity and an element which can best be described as an assemblage of quantitative and (presumably also) qualitative continua; that in the Timaeus describes the Creation of the world as the bringing of order into a disorderly and irregularly moving mass of indeterminate qualitative appearances by means of what might be provisionally called copies of the various Ideas.

That this interpretation is something like the truth, better at any rate than the interpretation of the Receptacle as Space, appears from the third approach, where after concluding the account of the rôle of Necessity, Plato returns to the point where he had broken off the account of the works of Reason, first recapitulating the earlier part of that account, at the same time incorporating the conclusions of the account of Necessity:"As I said at first, when all things were in disorder God created in each thing in relation to itself and in all things in relation to each other, all the measures and harmonies which they could possibly receive. For in those days nothing had any proportion except by accident.....And these the Creator first set in order and out of them he constructed the

1. Timaeus 48C.

universe...."[1] and then takes up the work of the Junior Gods in respect particularly of man.

Before leaving the Timaeus one might touch on two points of resemblance between the Timaeus and the Sophist and Parmenides. We have seen that the One of hypothesis ii, a One Being that includes as real both Rest and Motion, is worked out as the παντελῶς ὄν of the Sophist. The latter not only includes the same Rest and Motion, but is shown to necessarily include Soul, to be in fact a ζῷον. So in the Timaeus not only has Becoming some sort of reality in its own right over and above that of Being - by virtue in fact of the reality of the Receptacle - but the Universe is a ζῷον, has a World Soul. In the reality of sensibles and the existence of Soul, of a Soul of the Universe, then, the Sophist and Timaeus are agreed and are to a certain extent anticipated by the Parmenides.

A second point of resemblance is the employment in the Timaeus of the terms Being, Same and Other in the composition of the World Soul, which terms remind us of three of the Greatest Kinds of the Sophist. Ross,[2] in fact, identifies the Being, Same and Other used in the composition of Soul with these Greatest Kinds of the Sophist, and more accurately Cherniss[3] identifies with these Kinds the Indivisible Being, Same and Other, leaving Divisible Being, Same and Other to the phenomenal dispersion of these Kinds in Space. Without going into the very vexed question of the precise composition of the World Soul,[4] which is not strictly relevant to our theme, we might quote Timaeus 35B:"When he had mingled them with the Essence and out of the three made one, he again divided this whole into as many portions as was fitting, each portion being a compound of the Same, the Other and Being." As Soul was made up from the same constituents as the Ideas and apparently also of? sensibles, so that it could know and perceive them, it would seem that, like Soul, both Ideas and sensibles were composed of Being, Same and Other. This analysis, however, is not necessarily complete, so that it is possible to see here the same conception of the composition of Ideas as in the Sophist,[5] where Same, Other and Being are part of their constitution; and in the case of sensibles it may well be

1. Timaeus 69B. 2. Plato's Theory of Ideas 130.
3. The Riddle of the Early Academy 46.
4. van der Wielen, Die Ideegetallen van Plato 159-160, is almost certainly wrong in identifying Divisible, Indivisible and Intermediate Being with Space, Ideas and Copies resp. Nor do I like Taylor's version, A Commentary on Plato's Timaeus 108-9, that the three elements are Indivisible, Divisible and Intermediate Being, the former two equalling Same and Other respectively. Impressive interpretations are those of Cornford, Plato's Cosmology 61, and Ross, Plato's Theory of Ideas 121-3, that the 3 elements are an Intermediate form of Being, an Intermediate Same, an Intermediate Other, and that of Robin, Platon 198-9, that they are Intermediate Being, with Same and Other, the former two keeping, the latter excising αὐτὸ πέρας. 5. See page 252 above.

that Divisible Being masks some principle of multiplicity, since we have descriptions of Being being cut up into an infinity of parts and being scattered everywhere both in hypothesis ii of the Parmenides[1] and in the Sophist.[2] Of this, however, we have no further evidence, and indeed it is not at all clear what relation this has, or the Same and Other have, to the Receptacle. This much, at least, is clear, that the Being of the Ideas - Indivisible - is different in kind from that of sensibles - Divisible.

A final point, in itself not of much significance, but showing that Plato was serious about the connection of the Demiurge with the life on this earth, is an anticipation of this thought which runs through the Timaeus, in Sophist 265C, noticed by De Lacy[3] and Ross[4]: "Shall we say that all mortal creatures and also such plants as grow on the ground from seeds and roots, and such inanimate bodies as are both molten and unmelted within the earth, shall we say that all these came into existence later, not having been in existence before, by any other means than a Demiurgic God? Or shall we accept the theory of the many that these were generated by some spontaneous cause and without design?...." There is also a myth in the Politicus where use is made of a Demiurgic God, but as this is myth it is safest not to make too much of it.

1. Parmenides 144B, where the key word is κατακεκερματίσθαι.
2. Sophist 258DE, note the κατακεκερματισμένης.
3. Classical Philology XXXIV.114. 4. Plato's Theory of Ideas 127.

The Philebus. The passage on Limit and Unlimited and the fourfold classification of Being is really the only one in the Philebus which holds out the promise of finding the key to Plato's Later Theory of Ideas, if the dialogues are to supply this key at all. Yet it has been denied by Shorey[1] and Ross[2] that the passage has any value in this connection. Thus the former says, "There is no cause to take the fourfold classification of Being as a reconstruction of his entire philosophy, since 23B explicitly says it is to be used as an instrument for solving the ethical problem," viz. whether Pleasure or Knowledge constitutes the good life, and if neither, which shall occupy second place. Again, Ross, that "The passage is not meant to throw light on the Ideas....The doctrine of the four kinds is introduced to settle the priority of Reason or Pleasure in the Mixed Life....There is no reference to Ideas." I believe these critics are correct when they assert that the doctrine is meant primarily to throw light on the ethical problem, but I disagree that this purpose is incompatible with any reference to the Ideas. I mean that while the classification referred to is meant to be used as an instrument for solving the ethical problem, it is at the same time a classification of Being, of Realities, and is seriously meant, and so must incorporate part at least of Plato's beliefs about Reality, unless with Taylor[3] and Raven[4] we deny that Ideas have any place in the classification because the whole doctrine is not Platonic at all, but Pythagorean.

But it is not Pythagorean; at least, while the bare skeleton is Pythagorean, the doctrine in its entirety, as given in the Philebus, is Platonic, a Platonic construction on a Pythagorean foundation. So even Raven[5] allows that the attribution of qualitative characteristics to Limit and Unlimited, the using different proportions of these principles in different things, the making both opposites continua - hotter and colder - and the addition of Mind as a fourth class, are Platonic. Ross[6] also grants that Plato has added Mixture and Cause to the Pythagorean Limit and Unlimited, and by interpreting the Limit and Unlimited as general names for a whole family of limits and 'unlimiteds' he implicitly admits that the reconstruction goes even further. When, then, the very protagonists of the view that we cannot find a statement of any part of the Theory of Ideas in the fourfold classification of Being nevertheless allow that this is not so much a reproduction as a reconstruction of a Pythagorean theory, the fact that this doctrine is used as an instrument for solving an ethical problem must be without prejudice to this doctrine's incorporating some part at least of Plato's own Theory of Ideas. That this is so, and what it incorporates, we shall now attempt to demonstrate.

1. What Plato Said 319. 2. Plato's Theory of Ideas 136-8.
3. Plato the Man and his Work 416 note. 4. Pythagoreans and Eleatics 185-6. 5. Op. cit. 183-4. 6. Op. cit. 132.

Limit and Unlimited. The immediate ethical problem is to show that Pleasure is not the Good because there are bad pleasures. That there are both good and bad pleasures implies that Pleasure is many, and this leads to the ontological problem how the Many can be one and the One many. "Let us establish", says Socrates,[1] "this marvellous principle, that One is many and Many one." Protarchus[2] asks if he means that he, Protarchus, is one and yet many as being great and small, etc., and Socrates replies:[3] "Those wonders are common property. What I mean is the Unity which is not the unity of things that come into being and perish,...but that Man is one, Ox is one, Good is one....We should first ask whether one must maintain the existence of such completely indivisible units, and then how, if each is one and the same for ever, and admits of neither Becoming nor Perishing, it can be most surely one, and yet then be said to be either dispersed and pluralised amongst an infinity of things that come into being, or present as a whole in them apart from itself,[4] being one and the same at the same time in both one and many."[5]

There is a very clear back-reference here to Parmenides 129A-C:[6] "Do you not think there is an Idea of Likeness, itself by itself... in which both you and I participate and the other things which we call many?....If that which is One Itself you showed to be many, or the Many one, I should be amazed....but if you showed me to be both one and many, saying....that one part of me is right and another left, etc. - for I admit I share in multiplicity - but yet one..by sharing in Man and One, what wonder is that?" In the Parmenides Socrates thinks it no marvel that he should be both one and many, but would be amazed if the One could be shown to be many or the Many one; in the Philebus he dismisses the thought that he is both one and many as childishly obvious, and posits the real problem as how an Idea, Man, Ox or Good, can be both one and many. Thus, here, although the immediate problem is the ethical one of showing that Pleasure is not the Good, it depends for its solution on the ontological problem of showing that an Idea can be both one and many, for the proof that Pleasure is not the Good depends on just this, that Pleasure, being both one and many, can be both good and evil, and insofar as it is evil it cannot be the Good. Hence, the answer to

1. Philebus 14C. 2. Philebus 14D. 3. Philebus 15AB.
4. This is a further explicit reference to Parmenides 131A-E, where Participation in the Ideas is shown to lead to the Idea being either dispersed or separated from itself, DIVIDED OR MULTIPLIED.
5. I have here followed Ross' translation, Plato's Theory of Ideas 131 with note, but Bury's reading, referred to in Hackforth's Plato's Examination of Pleasure 20 note 1, seems the best. It comes to much the same thing. Other discussions of the passage are given in Journal of Philology XXVII.229-230; Mind VI.34; Greek Philosophy 326; and Hardie, A Study in Plato 82.
6. Observed by Tocco, Journal of Philology XXIII.165; Taylor, Mind VI.35; Ritchie, Plato 115; Robin, Platon 93-4; Stenzel, Plato's Method of Dialectic 140; and Zahl und Gestalt 16; and Ross, Plato's Theory of Ideas 130-2.

be given to this problem of the One and the Many is an ontological one and, in its immediate context at least, refers to the One and the Many in the realm of Ideas - Man, Ox, Good, and, we may add, Pleasure. And what is the solution offered of this problem of the One and the Many in the realm of Ideas?

This solution is given in Philebus 16B-E:"There is no better road than that which I have always loved, one easy to point out, difficult to follow. I mean a gift of the gods to men, tossed down... through the agency of a Prometheus, whence the tradition is handed down that all things are sprung from One and Many,and have inherent in them Limit and Unlimited. We must thus always assume that there is in every case one Idea of everything and look for it, then for two or three, and treat each such unit in the same way until we see not only that the original unit is one and many and infinite, but how many it is. And we must not apply infinity to plurality until we have a view of its whole number between infinity and unity; only then may we let each unit pass on into infinity." This clearly refers to the process of Division[1] and the infinite number of particulars in the case of each Idea. The Genus is one, its species are a finite many, and the particular instances are infinite in multitude. One determines the limited plurality of the Species by means of the process of Division, of which Socrates had said in Phaedrus 266B that he was a great lover. The solution to the problem of the One and the Many, then, is that the Genus is one, its Species are a LIMITED Many, and its particular instances are UNLIMITED in multiplicity, this Limit and Unlimited being inherent in the nature of things. Its application to the ethical problem is that while the Idea of Pleasure is one, it has Many Species and an Infinite multitude of instances, so that it is quite feasible that some pleasures be good and others bad; hence, as the latter case shows, Pleasure is not the Good. In this passage, then, Limit means no more than the limited number of the Species, the μεσά , and Unlimited the unlimited multiplicity of particular instances. These are inherent in the nature of the Ideas: it is a fact that the Genus can be subdivided into Species and is mirrored in its instances; that is all. An example is given of this in the case of Sounds, the point is made that Pleasure has many Species and Knowledge or Wisdom likewise, that the Good can really be neither of these since it is perfect and sufficient, but must be a life which is a mixture of the two,or of the best parts thereof, and the problem to which Socrates then turns is to determine which is second-best - Pleasure or Wisdom - if the Mixed Life is the best.

The Fourfold Classification of Being. Socrates asserts that in order to solve this problem new weapons are necessary, and finds

1. Cp. Jackson, Journal of Philology X.277; XV.296; Schulhof, Journal of Philology XXVIII.2; Stenzel, Plato's Method of Dialectic 141 & Zahl und Gestalt 13 and 18-19.

these by returning to that gift of the gods mentioned earlier, that all things should have inherent in them Limit and Unlimited:"We said that the god revealed the Limit and Unlimited in things...Let us, then, posit these two kinds and add as a third the Mixture of both... But we seem to need also a fourth kind...the Cause of their Mixture."[1] This fourfold classification, it is true, is posited in order to deal with the ethical problem:"Which takes second place, Pleasure or Wisdom, if the Mixed Life is the best?" But since a clear back-reference has been made to the Limit and Unlimited, which have been shown to be meant ontologically, this classification also must have an ontological ground - Plato deals with the ethical problem by means of a classification of real things. Nor, AT THIS STAGE, does the Mixture mean the Mixed Life,[2] for that would be begging the question. Plato's argument here is similar to that in the Phaedo[3] where, in order to prove the immortality of the soul, a division of reality is made into the visible and the formless. These kinds represent sensibles and Ideas respectively, and only when the soul has been shown to belong to the formless rather than to the visible can its priority be demonstrated. It is an argument from analogy. So here the Mixed Life, Pleasure and Wisdom are analogically assigned to their respective places in the fourfold classification in order to determine their priority, but the classification and the relative position of each kind must first be determined independently of the ethical problem. Plato does not make it quite clear in what order his four classes stand, except that the Cause is the highest and the Unlimited the lowest. From its very name the Mixed Life is assigned to the class of the Mixed,[4] (which is a weakness in his scheme as this should be the highest)[5], Pleasure by reason of its nature is assigned to the class of the Unlimited,[6] and in virtue of its inseparable association with Soul, Mind is identified with the Cause, hence Wisdom likewise.[7] This vindicates the claims of Wisdom as against Pleasure, and explains why ,in his examples of the Mixture, Plato confines himself to instances of "easily discernible works of Reason".[8] Now such a procedure is meamingless unless there was some independent basis for the classification. Our problem is to determine what this was: the sensible or the intelligible universe or both together.

Since Plato refers back to the Limit and Unlimited of 16C,[9], it might seem that these terms have the same denotation in both places. But in 16C the Limit represented the limited number of Ideas as Species in any one Genus, the Unlimited the infinity of particular

1. Philebus 23CD. 2. Shorey, What Plato Said 320. 3. Phaedo 78C-80C. 4. Philebus 27D. 5. Compare Hackforth ad loc. in Plato's Examination of Pleasure 52 note 1. 6. Philebus 27E.
7. Philebus 30CD. 8. Hackforth, op. cit. 38, cp. van der Wielen, Die Ideegetallen van Plato 111-2. 9. In 23C and 24A.

instances, but this meaning hardly seems apposite in 23Cff since the Mixed Class could hardly consist of a mixture of Ideas and of sensibles, which is perhaps why Brommer[1] says that the distinction of One and Many in 16C is not the same as that in 23C-7C. As Limit and Unlimited are undoubtedly Pythagorean categories and were the elements of all things, it is natural to suppose that this is their meaning here - they are the elements of which the Mixed Class is composed. In this case I would interpret the relation between their meaning in 16C and that in 23Cff as that of effect to cause. The Limit as element is the cause of the limitedness of the number of Species in the Genus; the Unlimited as element is the cause of the unlimited multiplicity of sensibles. This implies that the Ideas are behind the Limit of 23Cff, if not identical therewith, and that some principle of mulitiplicity is included in if not identical with the Unlimited of 23Cff. A more precise determination depends on the analysis of the respective terms as defined by Plato in the course of this passage. We shall, then, turn to the definition of each class, except that the Cause,[2] which Plato clearly defines in terms of Soul or Mind, lies outside our purview.

The Class of the Mixed. This seems to mean the sensible world, or at any rate that part of it which is good and beautiful:[3] "If these two elements are unified, a third class is revealed - the class of the equal and double[4] and everything which puts an end to

1. Mnemosyne XI.iv.281 n.3. 2. To interpret the Cause as the Ideas is manifestly incorrect - Adam, The Republic of Plato II.161; Zeller, Plato and the Older Academy 266.
3. Cp. Timaeus 28A:"When the Demiurge creates its form and power by constantly looking towards what is according to the Same, using it as a sort of pattern, it is necessarily beautiful."
4. The reading here is difficult. I follow Fowler in the Loeb Edition, but Jowett reads:"When the two are combined a third will appear.- What do you mean by the class of the Finite?(ποίαν καὶ πῶς λέγεις;)- The class of the equal and the double..." Fowler seems to me to be the more correct, but Jowett evidently wishes to refer the class of equal and double to the Limit as in 25A. Jackson, Journal of Philology X.269 note 1, achieves the same result by transposing two sentences and making other changes, but this is not warranted by the manuscripts. The only telling objection to the text as it stands is that it says that the class of the Limit was not reduced to unity as was that of the Unlimited, whereas examples were in fact given in 25A. But the text is correct: no attempt was made there to give one designation to it, to "impress upon it to the best of our ability the seal of some single nature," as was done in the case of the Unlimited at 24E-5A by dubbing it the More and Less. On the other hand, the description of the third class in 25E as that "which puts an end to the differences between opposites and makes them commensurable and harmonious by the introduction of number" seems to suit its further illustration as health, and especially 26A:"The addition of these same elements creates a limit and establishes the whole art of music in all its perfection". I explain the attribution of Equal and Double to both classes thus: 1:1 and 2:1 of the Limit, when imposed on the Unlimited as the Unequal, gives rise to the Equal and the Double respectively - and 1:1 and 2:1 are the equal and the double. After all, in the case of numbers, the Limit and the Mixture would surely have the same name, for what other name could there be for either except that of the number in question?

the differences between opposites and makes them commensurable and harmonious by the introduction of number. So in the case of illness, the proper combination of these opposites produces health."[1] Again, "In the case of the acute and grave, the quick and slow, which are unlimited, the addition of these same elements creates a limit and establishes the whole art of music. In the case of cold and hot weather, the introduction of these elements removes the excess and indefiniteness and creates a moderation and harmony, and thence all seasons arise and all the beauties of our world, by mixture of Unlimited with Limit.[2] I pass over countless other things, health, beauty, strength, virtues."[3] The choice of examples here seems to have been made in accordance with the provenance of the doctrine, from Pythagoreanism, and this explains the emphasis on harmony and music and the medical doctrines of the Sicilian school implicit in the proper combination of opposites to produce health. However, examples from Pythagoreanism notwithstanding, and the apparent restriction of the Mixed Class to the harmonious part of the sensible world,[4] it is clearly the sensible and not any Ideal world that is asserted to be the Mixed Class. So Ross[5] points out, with references to the text, that the Mixed Class is Becoming, is generated, that Plato is making an analysis of the present contents of the universe, and that the Ideas are elsewhere referred to as unmixed. His arguments seem to me to be sound, and while a few commentators[6], doubtless influenced by Aristotle, allow that Ideas are tacitly included in the class, the great majority[7] concur in confining the Mixture to sensibles. Hence, I conclude that the Mixed Class represents sensibles, and is analogically illustrated[8] by the harmonious, the well-mixed.

The Class of the Limit. This is characterised as "all that does not admit of More and Less - first equality, then double, and anything which is a finite number or measure in relation to such a number or measure."[9] The latter part of this sentence, a number or measure standing in relation to another number or measure, clearly refers to ratios, which is why many commentators[10] interpret the Limit as Ratio. But if the Mixtures were chosen analogically, it is likely that the Limit also is only analogically meant, and this is the

1. Philebus 25DE. 2. τῶν πέρας ἐχόντων. Hackforth, Plato's Examination of Pleasure 43, points out that πέρας and τὰ πέρατα ἔχοντα are used indifferently. 3. Philebus 26AB. 4. See p.266 n.7.
5. Plato's Theory of Ideas 134. 6. Jackson, Journal of Philology XIII.34; Burnet, Greek Philosophy 331-2; Milhaud, Les Philosophes Géomètres de la Grèce 354; Robin, Platon 142. But van der Wielen, Die Ideegetallen van Plato 129 and 185, and Stewart, Plato's Doctrine of Ideas 99, would make the Mixture Ideas exclusively.
7. De Lacy, Classical Philology XXXIV.110; Dora Mason, Classical Quarterly III.13-4; Cook Wilson, Classical Quarterly III.125-6; Brommer, Mnemosyne XI.iv.285 & 288; Cherniss, Riddle of the Early Academy 18; Grube, Plato's Thought 301; Hackforth, Plato's Examination of Pleasure 37; Ritter, The Essence of Plato's Philosophy 192. 8. Cp. Robin, Platon 156. 9. Philebus 25AB.
10. Hackforth, op. cit. 42-3; van der Wielen, op. cit. 110; Ross, Aristotle's Metaphysics I.171, Plato's Theory of Ideas 135.

more probable that in the constitution of sensibles from the four Roots mixed in certain ratios is characteristic of Empedocles,[1] and as recurring in the Timaeus[2] was perhaps of Pythagorean provenance. Hence, if we interpret the Mixture as sensibles in general, although the actual examples are confined to patterns of health, music, etc., we must also interpret the Limit, although specifically no more than ratios are mentioned, along similar broad lines, as the whole of that class of which ratios are the most important examples. Hence, I do not think there is any warrant for confining the Limit to mathematical terms. If ratios are specifically Pythagorean, then in Platonic language the Limit is number and figure,[3] possibly in more generalised terms, 'images' of Ideas in general, corresponding to the εἰδώλια of the Timaeus.[4] The Limit, then, comprises various 'images' of the Ideas and is one general name for the whole family of limits.[5] But here we can make use of a better terminology than that of "images of Ideas." In 15AB Socrates had asked how the Idea, when either divided or multiplied in Becoming, could yet be a unity, and the answer was given in 16Bff that this was inherent in the composition of things from Limit and Unlimited. Applying this, we can say that the Limit, and the εἰδώλια of the Timaeus, are in fact the Ideas either divided or multiplied in wonderous wise. Hence, where[6] we have used the expression "images of Ideas"above, we now substitute "Ideas either divided or multiplied". Behind the Limit, then, are the Ideas.[7]

The Class of the Unlimited is characterised as "Hotter and colder",[8] and "to hotter and colder add drier and wetter, more and less, quicker and slower, greater and smaller."[9] Indeed, "all things appearing to become more or less, to admit the emphatic and gentle, and excessive and the like, are in the class of the Unlimited."[10] Thus, the material element of the sensible world is an indefinite[11] assemblage of such opposites as hot and cold, dry and wet, etc., which characterise the world of sense. As Schulhof[12] and Ross[13] put it, the Unlimited is multiform, is a general name for a whole family

1. Diels 21A78 & B96. 2. Timaeus 73E, 74CD.
3. Conacher, Philosophy XVIII.103:"(As in the Timaeus) so in the Philebus the Limit has a mathematical character;" Robin, Platon 155:"The Limit introduces measure and number...into discontinuous quantity."
4. Adam, The Republic of Plato II.161, and Stewart, Plato's Doctrine of Ideas 100, take the Limit to be Intermediates, but then they wrongly interpret the Cause as Ideas. Grube, Plato's Thought 301-302, points out that while the Intermediates may be found along with Ideas under the Limit, Plato does not differentiate them here.
5. So Ross, Plato's Theory of Ideas 132; Cp. Shorey, What Plato Said 320, that πέρας is a generalisation of the idea of Limit, whether of matter by form or of chaos by a principle of order, etc.
6. See page 260 above. 7. Hackforth, op. cit. 41; Classical Philology XXXIV.111 note 19; Mnemosyne XI.iv.288. 8. Philebus 24AB.
9. Philebus 25C. 10. Philebus 24E-5A. 11. Philebus 26CD, where the multitude of this class overwhelms Protarchus.
12. Journal of Philology XXVIII.3. 13. Ross, op. cit. 132.

of unlimiteds. Further, the force of the comparative degrees in each case - hotter and colder, etc. - seems to indicate that here continua are in question, forming a continuous gradation from one opposite to the other. In this sense the Unlimited is interpreted by Hackforth,[1] Taylor,[2] Raven,[3] and others.[4] This not only agrees with Plato's description of the Unlimited as quoted above, but with the description of the material principle in the Parmenides and Timaeus.

Before comparing these, it will be as well to mention here an alternative interpretation, which is supported by Shorey,[5] Stenzel,[6] and perhaps others,[4] that the Unlimited is the indefinite infinity of particulars, the undetermined Many before they are determined by the Idea. This is, perhaps, best explained in the arithmetical field as the collection of all possible positive real numbers,[7] the indefinite plurality of all unequal numbers ranging from 2 to infinity.[8] The Limit determines which of these numbers is in question. But it is difficult to see why the numbers so determined should be termed 'Mixed'; further, which perhaps comes to the same thing, is there really any difference between the Mixed and the Unlimited in this case? It could only be the thinking process that could change undetermined particulars into determinate particulars, and is this change so great that one could class the former as Unlimited, the latter as Mixed? The sensibles are surely there, as sensibles, even before they become determinate, their qualities are the same before as they are after! And if, as seems almost certain, there is a close connection between the Cause of the Philebus and the Demiurge of the Timaeus, how could the cause of such determinateness, viz. a mere process of thought, be conceived, no matter how 'mythically', as Creation? By Cause Plato means something objective - Soul or Mind - and not a thinking process; his Creation is an actual coming into being and not a mere change in awareness; the coming into being is meant as the appearance of concrete particulars where before there was only chaos, and not a merely mental arrangement of things which existed as actual concrete particulars in the same form objectively both before and after the act of cognition. Let us summarise and then compare the doctrine of the Philebus with those of the Parmenides and Timaeus, so far as these dialogues go into the questions discussed in the Philebus.- for the Sophist has little that is directly relevant.

1. Plato's Examination of Pleasure § 42. 2. A Commentary on Plato's Timaeus 325. 3. Pythagoreans and Eleatics 183.
4. Ross, Aristotle's Metaphysics I.170-1 & 175-6, Plato's Theory of Ideas 136-7 & 184, is so vague that I cannot decide whether he means qualitative continua or undetermined particulars. So also van der Wielen, Die Ideegetallen van Plato 109, 116-7, 158, whom Ross apparently follows. 5. What Plato Said 320.
6. Zahl und Gestalt 19, cp. Plato's Method of Dialectic 148.
7. van der Wielen, op. cit. 116-7.
8. Ross, Plato's Theory of Ideas 203.

We have seen that, in order to show that Pleasure could not be the Good because there are bad pleasures, 'Socrates' turns aside from the ethical question to the ontological one, how the One can be many, not in the sensible world, but how one Idea can be many. In the Parmenides this was shown to follow from the reformulation of the One as a whole of parts; in the Philebus this is said to be the result of the constitution of all things from two elements, the Limit and the Unlimited. Because of this universal principle any generic Idea has many Species, limited in number, and the Idea has further a multiplicity of particular instances, unlimited in number. This is made use of, the former to analyse the species of Pleasure and of Knowledge in order to separate out the better from the worse for use in the Good Life; the latter to show that many instances of Pleasure can have no place at all in the Good Life since they are undesirable. But the principles of Limit and Unlimited are not elaborated further until 23Cff, where they are used to classify the four kinds of Being as a basis for determining whether Pleasure or Wisdom holds second place, the first being the Mixed Life itself.

Here the sensible world of experience is analysed into three kinds: the elements Limit and Unlimited already referred to and as a third kind the resultant mixture, i.e. the sensible world itself. For a reason to be dealt with in the next chapter, which reason accounts for the choice of Pythagorean nomenclature in the case of the two fundamental elements, viz. Limit and Unlimited, Plato cites as his examples of the Limit and of the Mixture the sort of examples that might have been given by the Pythagoreans - ratios in the former case, health, music, weather, in the latter. But since the Mixture is intended to represent the sensible world in general and not merely health, music, etc., the Limit can be interpreted as 'images' of all the Ideas, and not merely those of Number and Figure. The Limit, then, is the 'images' of Ideas which determine the Unlimited and so give rise to the sensible world - the Mixture. The Unlimited itself is described as the hotter and colder, wetter and drier, etc., i.e. qualitative continua such as are revealed to the senses in the stabilised form in which they appear as already 'mixed' in the present universe. And the cause of the Mixture, the cause of the placing of the Limit in the Unlimited, is Soul or Mind.

A description of the material element of sensibles resembling that of the Unlimited in the Philebus appears also in hypothesis vii of the Parmenides,[1] and again in the description of Chaos in the Timaeus,[2] the former being the appearance of the universe with the One abstracted, i.e. in the absence of any principle of unity, the latter being the appearance of the universe before Creation, i.e. in the absence of the εἴδη ὄντα, the ordering principles. Similarly,

1. So Brommer, Mnemosyne XI.iv.289; Cornford, Plato & Parmenides 156.
2. Journal of Philology XIII.17; Hackforth, Plato's Examination of Pleasure 40; Poss, Plato's Theory of Ideas 136-7.

just as the Limit is described in the Philebus in mathematical terms as ratios, which in Platonic terminology means the numbers and figures that are 'images' of the Ideas of Number and Figure, and so of all such 'images' generally, so in the Timaeus it is number and figure particularly, illustrated in the case of the four Roots by the four regular geometrical figures made up of triangles, and by τὰ εἰδόντα generally, which doubtless refers to 'images' of any Ideas, that the disorder of Chaos is brought into order. So even Shorey[1] sees in the Limit a generalisation of the idea of limit, including that of Chaos by a principle of order, which seems to be an allusion to the Timaeus Conacher[2] says that in the Philebus also the Limit has a mathematical character, and effects the change of Process as a change of quantity - from a smaller to a greater degree of the quality. Finally Ross[3] compares the configuration of the world by means of shapes and numbers via triangles in the Timaeus to the numerical and metrical definiteness of the Limit in the Philebus.

The identity of the Cause of the Philebus with the Demiurge of the Timaeus is obvious[4] and is made explicit by Plato in Philebus 27B, τὸ δὲ δὴ πάντα ταῦτα δημιουργοῦν, which is taken by Hackforth[5] and Ross[3] as a back-reference to the Timaeus. But even the Mixed Class seems[6] to have been anticipated in the description of the constitution of the soul in Timaeus 35AB, where a third class of Being is formed by mixing the Indivisible with the Divisible Being.[7]

However that may be, the constitution of sensibles from two elements, one being qualitative continua, the hotter and colder, drier and wetter, etc., a sort of precosmic chaos, the other being a principle of order, of quantitative definiteness, effected by 'images' of the Ideas - which may be no more than to say that Plato can only explain the presence of the Idea in the infinite multitude of particulars by means of this metaphor - this constitution of sensibles is explicitly given as such in the Philebus and the Timaeus and is implied in the Parmenides, and must therefore have been part of Plato's later doctrine. Let us, then, condlude this section by comparing the evidence of the dialogues with Aristotle's testimony in respect of the points made use of in Part I, Chapter 2, above.

1. What Plato Said 320. 2. Philosophy XVIII.103.
3. Plato's Theory of Ideas 137. 4. See Classical Quarterly XXX.4; Journal of Philology XIII.16; Field, The Philosophy of Plato 129; Ritchie, Plato 135. 5. Plato's Examination of Pleasure 39.
6. So in Classical Philology XXXIV.110 note 63.
7. Hence the four classes of the Philebus - Limit, Mixture, Cause and Unlimited - correspond respectively to those of the Timaeus - firstly Pattern and Copy, next, to account for the works of Reason the Demiurge, and finally, to account for the rôle of Necessity, the Receptacle. The Demiurge (Cause) puts the εἰδόντα (Limit) into the Receptacle (Unlimited) in order to generate sensible copies of the Ideas (The Mixed Class).

γ) A Comparison between Aristotle's Evidence and the Dialogues.

The Change in Platonism. We have seen[1] that Aristotle's language in Metaphysics 1078b9-12 shews that he understood Plato's Theory of Ideas to have undergone a change, this change being connected with the derivation of Ideas from the elements of Number, the One and the Great and Small. Now there is no evidence whatsoever in the dialogues that the Ideas were ever derived from just these two elements, the One and the Great and Small, but there are definite indications that Plato modified his Ideal Theory and that as the result of this modification, the Ideas, instead of being each isolated and indivisible, became or were conceived as capable of being divisible and intercommunicable. For in the Parmenides the Earlier Ideas, as expounded by 'Socrates', are criticised as inadequate. This criticism is devastating and is not refuted either in this dialogue or elsewhere, so that the implication is that Plato was ready to abandon his earlier conception of the Ideas, which, as appears from Socrates' statement of faith in this dialogue, were characterised by their separateness from the world of sense and their isolation one from the other -for he would be amazed if it could be shown that Likeness is unlike or that Unlikeness is like, that the One is many or that the Many is one. But as their critic, 'Parmenides', insists that Ideas of some sort are necessary for thought, it cannot be supposed that Plato, while abandoning his earlier conception of Ideas, abandoned Ideas altogether. As Parmenides says that Socrates is yet young and should exercise his mind, and undertakes to give an example of the type of dialectical exercise he has in mind, it is reasonable to suppose that in this exercise - the so-called Trope - a new conception of the Ideas is to be revealed which will obviate Parmenides' criticism and that these Ideas, by answering Socrates' challenge to show that the One can be many, will be characterised by sharing in contrary attributes. How such Ideas could share in these contrary attributes and whether this characteristic had any connection with the derivation of such Ideas from elements, we shall leave over for the moment, but clearly, if this ability to share in contrary attributes is shown to depend on the derivation of Ideas from elements, whether or not it can be shown that the elements in question were those of Number, then Aristotle's evidence must be accepted, since silence in the dialogues is no proof that Plato did not hold any particular theory not mentioned there. For if Aristotle is corroborated in this, that there was a change in Platonism and that this change was connected with the derivation of Ideas from elements, the presumption is, in the absence of any indication in the dialogues either for or against, that he is correct also in this, that these elements were those of Number.

1. See pages 66-67 above with page 125.

The Reason for the Change. Before discussing the new conception of the Ideas, let us go into the question of Plato's motivation for thus reconstituting the Ideal Theory. Why did he find it necessary to derive the Ideas from elements? Or, alternatively, why did he find it necessary to allow the Ideas to share in contrary predicates? One must distinguish between Plato's real reason and that advanced in the Parmenides, which may or may not have been his real reason. This dramatic reason was to account for the contradictions of sense. Socrates dismisses Zeno's disproof of the Many - of the world of sense - which assumes that no sensible can be real if it is at once both like and unlike, by arguing that to share in contrary attributes does not mean that the subject is unreal, since, if there are Ideas of Likeness and Unlikeness, there is no reason why any particular sensible should not partake of both Ideas, assuming it can partake of any one. Although Socrates' explanation is rejected by Parmenides, who by criticising Socrates' whole conception of the Ideas shows that the assumption is untenable that any particular can partake of any Idea whatsoever, the matter is thereby not dropped since the whole Trope turns on the effort to show that the One is both like and unlike, both one and many, etc., which is summed up in 166C, that the One, whether it exists or not, is both one and many, and is neither, etc. Hence, it would seem that, since the deductions which justify this conclusion are not obviously fallacious, Plato really means that the One can share in contrary attributes without thereby forfeiting its reality. Indeed, in the case of sensibles, at least one feasible explanation of this is given in the so-called Appendix, that sensibles can partake of opposites in temporal succession. But how this is also possible in the case of Ideas is not made clear. The possession of contrary attributes is deduced in hypotheses ii and iii from the composition of the One out of the parts, Unity and Being and since in the Philebus it is said to be a gift from the gods that all things are both one and many, one might say that the possession of contrary attributes follows from the constitution of things from two elements as something inherent in their nature. However that may be, it is both Ideas and sensibles that are included in the One, and as Socrates had challenged his respondent to show that the Ideas as well as sensibles could be characterised by contrary predicates, the conclusion is implicit that in the Trope Plato raises the problem of the One and the Many from the world of sense to that of Ideas. In other words, any explanation of the contrary attributes of sensibles requires a corresponding explanation of this problem in the Ideal world, and conversely the explanation of the One and the Many among the Ideas is what explains this problem in the sensible world. The dramatic reason, then, for any reconstitution of the Ideas would seem to have been the need to explain the contradictions of sense. But Aristotle had said that Plato's motivation was to account for

the multiplicity of sensibles; at least, he says:"There are many causes which led them off into these explanations, and especially that....they thought all things would be one if one did not join issue with and refute the saying of Parmenides....They thought it necessary to prove that that which is not IS; for only thus - of that which is and something else - could the things that are be composed if they are many."[1] This may mean that Plato sought an explanation either how things are many or how things exist at all. In the former sense there is a certain resemblance to the dramatic reason suggested above. Plato found it necessary to recast his Ideas in order to explain how things could be both one and many, could share in contrary attributes, because any valid explanation required the raising of the problem to the realm of Ideas - to explain how sensibles could be many, Plato had to explain how Ideas could be many. But this is in the sense of sharing in contrary attributes, of being not merely both one and many, but also of both like and unlike etc., whereas Aristotle seems to mean that Plato recast his Ideal Theory to explain the multiplicity, if not simply the reality, of sensibles, which is not quite the same thing.

But the dramatic reason adduced in the Parmenides for the need to recast the Ideal Theory is not necessarily Plato's real reason. What the real reason was must remain a matter for conjecture, apart from what Aristotle says on the matter. One would have thought, in view of the important part played by the method of Division in his later period, that his real reason for reconstructing the Ideal Theory was to explain how a generic Idea, like Animal, could be both Man and Horse, etc. - to allow for and explain, in short, the inter-communication (κοινωνία) of the Ideas. There is nothing like this in the Parmenides, but this problem of κοινωνία is raised and at least partially solved in the Sophist, where there are definite indications of a connection of this κοινωνία with the method of Division, but the locus classicus is the Philebus. Here the problem of the One and the Many is raised in terms suggesting the introduction to the Parmenides, and is likewise raised to the realm of the intelligible. It is not problem how an individual can be at once both one and many; the real problem is how Man or Ox, any Idea, can be both one and many, and the answer is given, that it is inherent in all things to be both one and many - the Idea a limited or numbered many, sensibles an unlimited or infinite many. The former refers to the many species revealed by the method of Division, so that it seems justifiable to state that Plato concerned himself with the problem of the One and the Many, especially in the realm of Ideas, in order to give an ontological foundation to the method of Division. In the Philebus, then, we are on the track of Plato's real reason for recasting the Ideal Theory. Now in this dialogue the problem is

1. Metaphysics 1089a1-7, quoted on page 125 above.

raised in order to prove that Pleasure is not the Good, and the immediate question is whether there can be MANY pleasures. Here we have the reflection of Aristotle's alleged reason - in order to show that things can be many, Plato derived them from Being and Not-Being, and since this Not-Being had first to be shown to exist in some way or other, his whole Ideal Theory had to be recast. But surely Plato would not have done so merely to prove that pleasures can be many! This particular point is purely occasional, but it is a possibility that Plato's problem was simply to show how any sensibles at all could be many.

This is my solution. I base it on what Aristotle says, arguing that if he is right in so many points in this connection, such as the change in Platonism, the derivation of Ideas and things from elements, and the demonstration of Not-Being - which will be dealt with presently,- he is right also in this, that Plato was led to reconstitute his Ideal Theory in order to avoid things, sensible things, being one, i.e. to explain the multiplicity of sensibles. I accept Aristotle on this point specifically because, in this respect, his evidence is borne out by the Philebus. In other words, I take the reason implied for a change in the conception of Ideas by what is said ad loc. in the Philebus as Plato's real reason, as it agrees with what Aristotle says. The key is this:"What I mean is the Unity which is not the unity of things that come into being and perish....but that Man is one, Ox is one, Good is one...We should ask...how, if each is one and the same for ever...it can be most surely one, and yet then be said to be either dispersed and pluralised among an infinity of things that come into being, or present as a whole in them apart from itself...."[1] That is, the real problem that is agitating Plato's mind is how the unity of the Idea is compatible with its'presence' in a multiplicity of particulars. The answer given is that the solution is to be found in the inherent constitution of all things in Limit and Unlimited. Plato, then, recast his Ideal Theory by deriving all things from elements, the Limit and Unlimited, to use the Pythagorean terminology, in order to explain how the Idea could remain a unity while it was divided or multiplied in the infinity of sensible particulars. This is just what Aristotle says from another approach: Plato derived sensibles from the Ideas (Being) and Not-Being in order to account for their multiplicity.

One point remains before investigating this derivation of all things from elements: the demonstration that Not-Being IS. This need not detain us long. It has, I think, been amply demonstrated that in hypothesis v of the Parmenides and in the account of Κοινωνία in the Sophist, Plato shows, as against Parmenides, that Not-Being is not simply nothingness but is the contrary of Being, that it has

1. Philebus 15AB, quoted on page 264 above.

as the bond of its non-existence the affirmation of its Not-Being and so can be a subject of discourse, in a word that it IS.

The Derivation of Sensibles from Elements. We come now to the question of the derivation of sensibles from Being and this Not-Being, and more generally to that of the derivation of all things from elements. In the Parmenides, hypotheses ii and iii show that the One and the Others share in contrary predicates and are each one and yet many, because the One consists of the parts, Unity and Being, and as each part and again each part of these parts ad infinitum can be similarly subdivided into Unity and Being, the implication is that the Idea and the sensible are each divisible into these two parts, Unity and Being. Now it is hypothesis vii that deals more particularly with the composition of sensibles, and this sets out the condition of the Others in the complete absence of any systematic unity. But the denial of unity carries with it the denial of Being, since where there is unity there is Being, so that to deny Unity of the Others means denying their Being likewise, and we are left with Not-Being. This Not-Being is described[1] inter alia thus:"And while it seems very small in itself, it appears many and large as compared with each of the many and small/" - it is in fact an assemblage of indefinite continua. This is Not-Being and this is one of the two elements out of which sensible things are composed, the other element being called Unity, which is not further described but is perfectly compatible with this other element being the Idea.[2]

This principle is further described in the Timaeus as the Receptacle. The Parmenides deduced the existence and characteristics of Not-Being from the logical side; the Timaeus approaches the question from the physical side. If sensibles are copies of the Ideas, there must be a tertium quid in which the copies are copied - the Receptacle. But the Creator did not produce something from nothing; He merely ordered what was previously in disorder. Hence, this Receptacle was more than just Empty Space - it was Filled Space, consisting of various qualitative continua which were ordered by the Creator by the imposition of 'forms and numbers' to give the Cosmos, and it is characteristically described[3] thus:"The Nurse of generation, moistened....and enflamed....and experiencing all.... affections...., presented a strange variety of appearances./" The account differs from that of hypothesis vii only in its emphasis on qualitative appearance whereas the other deals rather with quantitative appearance; but the latter seems to be due to the particular

1. See pages 240-1 above.
2. If Plato means 'Unity' literally, it is because he is dealing with the One particularly. Then any sensible UNIT would have as the cause of its unity the Idea of Oneness. If he means it only analogically, then since what especially characterises the Idea is its unity, 'Unity' is particularly appropriate as the representative of the Idea in general.
3. See pages 256-8 above.

choice of attributes determined by the mise en scène, i.e. Plato uses the concepts which form the stock-in-trade of Zeno's paradoxes such as like and unlike, one and many, large and small. Such attributes as hot and cold, wet and dry, which are implied by the 'moistened and enflamed' etc. of the Timaeus would be quite out of place in the Parmenides. Apart from this reservation, then, it is one and the same description of the material element of sensibles that appears in hypothesis vii and in the Timaeus.

As for the description of the other element in the Timaeus as 'forms and numbers', εἴδη ἀριθμῶν, triangles, etc., as Plato is here concerned not with the generation of all sensibles, but only with the four Roots, and his particular intention was to explain their transmutation mathematically, I interpret these triangles as having only this particular reference, so that the formal element of sensibles in general would not be 'forms and numbers' specifically, but generally that class of entities of which these 'forms and numbers' are an example. The same argument applies to the Philebus, where the Limit is designated 'ratios' (literally number : number and measure : measure) because the Mixed Class has been illustrated by such Pythagorean concepts as health, good weather and music, where no doubt the determining element was in the nature of a ratio. The resemblance between 'number : number' and 'measure : measure' in the Philebus and 'forms (i.e. geometrical figures) and numbers' in the Timaeus is so close that it seems reasonable to equate them. These are interpreted in Philebus by the introduction to the whole passage concerning Limit and Unlimited and the fourfold classification of Being, where these elements are presented as the answer to the question, How can the Idea remain one and yet be either divided or multiplied in sensible realities?[1] The Limit, then, and hence the εἴδη ἀριθμῶν also, are thus, in general terms, the Idea as split up or as multiplied (Plato leaves this an open question) in Becoming. The formal element of sensibles, then, is the Idea as it appears in Becoming. As for the Unlimited, it too is described in terms similar to hypothesis vii and to the Receptacle as the 'hotter and colder, the drier and wetter',[2] i.e. as an assemblage of qualitative continua.

Is Aristotle's Great and Small, which is the material element of sensibles, of a similar nature? Unfortunately, apart from his implication that the material element was a principle of multiplicity,[3] Aristotle gives no description of its nature, but in Physics 209b11-17 with 209b33-210a2 he draws a distinction between the Receptacle and Plato's material principle, which must be examined. This reads:"This is why Plato in the Timaeus says that Matter and Space are the same; for the 'participant' and Space are identical. (It is true indeed that the account he gives there of the 'Participant' is different from what he says in his so-called 'unwritten

1. See page 264 above. 2. See page 269 above. 3, Pages 107-9.

teaching'. Nevertheless, he did identify Place and Space.)..... Plato, of course, if we may digress, ought to tell us why the forms and the numbers are not in Place, if 'what participates' is Place - whether what participates is the Great and the Small or the Matter, as he called it in writing in the Timaeus." This has puzzled the commentators, and their difficulties turn about two points, the failure to distinguish the intelligible from the material Great and Small, and the failure to distinguish the description of the Receptacle as Space as purely provisional. Thus, in his earlier work, Ross[1] says that Aristotle is here misunderstanding and misinterpreting Plato, since the Great and Small in Number can only be an indefinite plurality, while the material principle in the Timaeus is indeterminate Space. In his later work, Ross[2] accepts a distinction between two kinds of Great and Small but accuses Aristotle of confusing them:"Therefore Aristotle was mistaken that, if Plato called the Great and Small in the genesis of Idea-Numbers the Participant, it was the same Participant as in the Timaeus. In the former case it is indefinite plurality, in the latter unlimited extension....Plato did not use the same Participant, but in one case indefinite plurality, in the other indefinite extension." But Aristotle does not, in my opinion, either say or imply that the Great and Small to which he refers was the substrate of Idea-Numbers The difficulty vanishes if the passage is read, understanding Aristotle to refer to a Great and Small which is the material principle of sensibles different from the substrate of Idea-Numbers in nature and in kind.

As for the other difficulty, take for example van der Wielen:[3] He says that Aristotle is correct that the Participant = Space, but there is no question of Matter in the Timaeus, and where Plato describes a Matter - the Unlimited of the Philebus - there is no question of Space. Hence, the identification of the Great and Small with Space is Aristotle's deduction and is incorrect. But Aristotle says nothing about the Great and Small being Space! Milhaud[4] is on the right lines: he sees that Plato held two different kinds of material element, for he says:"Aristotle says that while the Participant is Space in the Timaeus this was not the true view. I believe we have two different views in Plato because physics is a different order of knowledge from Ideas and so its language is different." Finally, Robin[5] correctly interprets Space as Filled Space. For finding a preliminary difficulty in equating the Receptacle with the Unlimited of the Philebus, he points out that this Unlimited is quantitatively determined by the Limit to give becoming and Aristotle says that Plato called the same thing the Great and

1. Aristotle's Metaphysics I.169 ad 987b20 to 170.
2. Plato's Theory of Ideas 221-3. 3. Die Ideegetallen van Plato 181-2 and 185-7. 4. Les Philosophes Géomètres de la Grèce 291-2.
5. Platon 233-4.

Small in his Oral Discourses and the Receptacle in the Timaeus, thus the Receptacle is a sort of qualifiable Space.

Remembering, then, that the Great and Small is one thing in the generation of sensibles and another in that of Idea-Numbers, and that the Receptacle is described as Space in the Timaeus only provisionally and is better described as Filled Space, Aristotle's comment becomes clear, and shows that he regarded the Receptacle as the Great and Small in sensibles. In the preceding paragraph to our quotation Aristotle says that in the case of magnitudes, when the form is abstracted, nothing but the Matter is left, which in this case is Place quâ Extension. Now Plato identified Place and Space, or rather, we should say, he failed to distinguish them. Hence, as Plato called the Participant Space in one passage, this is cited as a corroboration of what Aristotle is maintaining, for he knows that the Participant is Matter and so deduces that Plato makes Matter and Space the same, which is what he had just said: Matter is Place quâ Extension. The argument, of course, is rather forced, and Aristotle qualifies it by granting that the account given there, i.e. where the Participant is called Space, is different from what he taught orally, where the Participant was Matter. And yet in other passages of the Timaeus, as we have seen, the Participant is indeed Matter since it is Filled Space. Again, in the Timaeus 'forms and numbers' enter into the Receptacle to order it, and we have seen that these 'forms and numbers' are the Ideas split up or multiplied. Hence, Aristotle asks, why are these Ideas not in Space if the Receptacle is Space - whether it is Empty or Filled Space here is really immaterial. This is a topical hit, and I do not think Aristotle would have put much store by it. However that may be, in the last sentence quoted, Aristotle implies that the term 'Participant' was used in the Unwritten Teaching and was there the Great and Small, and that while not called this in the Timaeus it was indeed Matter. The passage is not a model of perspicuity with its indiscriminate use of Place and Space, nor is its logic beyond reproach since Plato expressly postulates Space as the IN WHICH Ideas can be copied, but Aristotle affects to place the Ideas in this Space, but it does testify to the essential identity of the Receptacle with the Great and Small as the Matter of sensibles.

Plato gives little indication that his material principle was a principle of multiplicity, but it is implicit in the Philebus, where the Unlimited is given as the ground of the infinite multiplicity of sensible instances of the Idea.[1] As for Aristotle's examples in this connection, Gold, Tables, etc., they have already been sufficiently discussed above.[2]

We turn now to the last point where there is some possibility

1. See page 267 above. 2. Page 108-9.

of corroborating Aristotle's evidence in question. This is the derivation of Ideas from elements. In the Parmenides, hypothesis i deals with the Eleatic One without parts, which is shown to be absurd, and the One is reformulated in hypothesis ii as a whole having parts. These parts are, in the first place, Unity and Being, and as the One there is the Universe it seems that both Ideas and sensibles are conceived as consisting of these two parts. In any case, it is reasonable to suppose that the One has a more general application, so that any Idea, as a One, will in any case be so constituted. Translated into more general terms, these parts are a principle of unity and a substrate (Being). Being is further analysed in the Sophist as including in itself Not-Being (since Being both is and is not) by virtue of the presence in it of Same and Other, so that the substrate is complex. It consists of at least these two pairs, Being and Not-Being, Same and Other. Similarly in the passage concerning the composition of the Soul in the Timaeus, as the soul is said to be made from the same constituents as Ideas and sensibles, and is itself composed of an intermediate type of Being, Same and Other, the presumption is that the Ideas and sensibles also are made out of Being, Same and Other, the Ideas from Indivisible and the sensibles from Divisible Being. That is, the substrate of Ideas is different from that of sensibles in being indivisible (i.e. incorporeal), and consists of the pair Same and Other, with Being doubtless representing both Being and Not-Being, just as the Being of hypothesis ii is elaborated in the Sophist into Being and Not-Being. No further evidence is given in the Philebus, except that, since ALL things are said to be composed of Limit and Unlimited, it is possible that, while the actual analysis there undertaken applies only to the sensible world, the Ideal world is also tacitly assumed to consist of these two elements. The terminology used is Pythagorean but since in the actual analysis of the sensible world the Limit appears to be a determining element and the Unlimited a substrate, applying this to the Limit and the Unlimited in the Ideal world, one could say that the Limit is an alternative term for the principle of unity, the Unlimited for the pairs Being and Not-Being, Same and Other, for they function in these ways respectively. It is possible that these two pairs do not exhaust the content of the substrate since the Sophist, where they are most fully elaborated, expressly states that these are only a selection of the Greatest Kinds.

Thus, the Ideas seem to have been composed of two elements, one being a principle of unity, the other a substrate consisting of such pairs as Being and Not-Being, Same and Other. Further than this we cannot go, but it is highly probable that the principle of unity was in fact the One, and the pairs cited might well have been subsumed under some more general term, which, in order to embrace both Ideal

and sensible substrates, was termed the Great and Small. While in respect of the composition of Ideas it cannot be said that the dialogues corroborate Aristotle, at least they reveal something which was conceived along similar lines, and suggest a doctrine which is compatible with Aristotle's evidence. That the dialogues go no further than we have stated here is no argument that Plato went no further; there is another body of evidence, independent of Aristotle, which will be investigated in the next section and which complements the dialogues. But before turning to this, it may be useful to detail what modern commentators have had to say about the relation between the metaphysics of the dialogues, especially of the Philebus, and the Theory of Idea-Numbers, as attested by Aristotle.

The Views of Modern Commentators. Shorey[1] denies both that there was any Doctrine of Idea-Numbers, that the relevant passages in the Philebus mean a reconstruction of Plato's philosophy, and that they have any reference beyond ethics. Cherniss[2] likewise denies that Plato held any Theory of Idea-Numbers and that the Sophist, Philebus and Timaeus mean that Ideas are made up from elements, but he seems to accept the composition of sensibles from Ideas and the Receptacle, from Limit and Unlimited, and argues that Aristotle erroneously extended this latter doctrine to include Ideas also. Brommer[3] denies that the Limit and Unlimited of the Philebus have anything to do with Aristotle's evidence of the One and the Great and Small as elements of Idea-Numbers, but finds the latter in the Unity and Being of the Parmenides; the Limit and the Unlimited are elements of sensibles only and as such the latter can be equated with the Receptacle.

On the other hand, many critics incline to the view that the One and the Great and Small, if they appear or are hinted at anywhere in the dialogues, are most akin to the Limit and Unlimited of the Philebus. Thus, Ross[4] says that the Philebus is the only dialogue where the doctrine of Idea-Numbers is foreshadowed: it gives no hint that the Great and Small unites with the One to give Ideas nor that it unites with Ideas to give things, but the description of the Unlimited is an anticipation of the Great and Small. Similarly Hackforth[5] allows that the Limit and the Unlimited show the said doctrine in the making. Elsewhere Ross[6] goes even further and admits that from the numerical nature of the Limit it is but a step to the doctrine of Idea-Numbers. By this he means[7] that the Great and Small was taken over from the 'greater and smaller' of Philebus 25C - which is just what Cherniss says Aristotle did in order to build up his fanciful notion of Idea-Numbers! However that may be, Ross[8] sees in the Philebus a sort of halfway house to the doctrine of Idea-Numbers.

1. What Plato said 316 ad Philebus 16C and 319.
2. The Riddle of the Early Academy 19-20 etc. 3. Mnemosyne XI.iv. 270-1. 4. Aristotle's Metaphysics I.170-1.
5. Plato's Examination of Pleasure 40 note 2. 6. Op. cit. lxix.
7. Plato's Theory of Ideas 135. 8. Op. cit. 184 and 203.

"Plato found Numbers presuppose the same two elements which in the Philebus he had analysed sensible phenomena into" and "In view of the undoubted descent of the Great and Small from the More and Less of the Philebus..." Along the same lines is Milhaud,[1] that the Philebus substitutes for the Pythagorean Unlimited Plato's More and Less; his Oral Teaching went further and substituted the Great and Small.

Finally, there are the views which interpret the action of the Limit and Unlimited, not as a precursor of that of the One and the Great and Small, but similar thereto. So Robin,[2] van der Wielen,[3] Burnet,[4] and Cornford,[5] to which can be added Cook Wilson,[6] that the One and the Dyad is an arithmetical translation of Limit and Unlimited.

I conclude, then, that the dialogues give clear evidence corroborating Aristotle that sensibles are derived from the Ideas and a substrate, which has the nature of an aggregate of qualitative continua, such as hotter and colder, wetter and drier, etc., as appears from hypothesis vii, the Unlimited and the Receptacle. There are plain indications that this substrate is different from that of Ideas, such as the distinction between Divisible and Indivisible Being in the Timaeus. And that there are hints of the composition of Ideas from two elements, as in the Unity and Being of hypothesis ii and the derivation of ALL things from Limit and Unlimited in the Philebus. But there is really no sign whatever in the dialogues that this Being, this Unlimited, is a Great and Small in the case of Ideas as of sensibles, and even the mention of Being and Not-Being, Same and Other in the Sophist and Timaeus does not really add very much. But the dialogues do not exhaust the sources of Platonism, apart from Aristotle. There remains an important body of evidence, in which, perhaps, more specific information can be gained as to the construction of Plato's Ideas, and to this we now turn.

1. Les Philosophes Géomêtres de la Grêce 357, cp. Ross, Aristotle's Metaphysics I. lvii :"A further phase is the derivation of Ideal Numbers from the One and the Great and Small. The More and Less of the Philebus is an earlier form of this phase."
2. Greek Thought 218. 3. Die Ideegetallen van Plato 169.
4. Greek Philosophy 329. 5. Plato and Parmenides 236-240.
6. Classical Review XVIII.254.

Section iii. Other Evidence Independent of Aristotle.

We have seen what evidence there is in the dialogues of Plato for the Doctrine of Idea-Numbers, as ascribed by Aristotle to Plato. We saw that there was corroboratory evidence, but only up to a point/. Obviously, if Aristotle's ONLY source for Platonism was the dialogues then where his evidence differed from them or went far beyond them, (and it cannot be denied that his evidence does go beyond anything that can be fairly deduced from the dialogues in several points) he must have been inventing or distorting. Hence, in order to corroborate Aristotle's evidence, it is essential to show that there was other evidence accessible to him besides that of the dialogues, and such evidence is most obviously Plato's teaching in the Academy and what lectures he might have given to the public. The task of this section is to determine whether Plato gave oral instruction in the Academy on which Aristotle could have drawn, and whether in the sole public lecture[1] which Plato is known to have delivered, that on the Good, he made statements on the Doctrine of Idea-Numbers which could have served as Aristotle's source. As our information on the former head is negligible, it will have to suffice that it be proved that Plato delivered oral discourses in the Academy - this will show that Aristotle did have a source for Plato's doctrines besides his dialogues, so that we should have an a priori case for the correctness of his testimony. On the latter head, our information is fuller and requires detailed examination.

i) Plato's Teaching in the Academy. Cherniss[2] has alleged that Plato did not teach in the Academy at all in the proper sense of the word; this notion has arisen on account of a tendency to retroject the modern meaning of 'academy' to Plato's Academia. In actual fact, he continues,[3] Plato did not lecture on the Doctrine of Ideas at all but formal instruction was limited to the Propaedeutics, especially geometry. He supplied formal instruction in the ground work alone and left the knowledge of the Ideas to come from within the soul itself. There is something to be said for this view. Phaedrus 275Dff, which Robin[4] thinks describes the method of instruction favoured in the Academy, deprecates the written word and allows it to have value only "as memorials to be treasured against the forgetfulness of old age", and praises the method of the dialectician who, "finding a congenial soul, by the help of science sows and plants therein words which are able to help themselves." This, however, bears a striking resemblance to the Socratic method, and we cannot be sure that it is not put into the mouth of Socrates for purely dramatic reasons. On the other hand, the sentiment finds an echo in Epistle vii, to which we shall refer presently. But if Plato took part in such 'Socratic conversations' in the Academy, he might well, like Socrates before him, have put

1. But see page 288 note 2 below. 2. The Riddle of the Early Academy 61. 3. Op. cit. 69-70 & 81-3. 4. Platon 12.

leading questions, which could naturally be taken as ex cathedra. Thus, while, as Jaeger[1] says, the classic doctrines about the Ideas, etc., were being constantly tested, defended and altered in the Academy, and the learners themselves took part in this, there is no reason to suppose that Plato also did not take part in the discussions and so express his own convictions on any question. All this is, however, guess work, since the actual evidence we possess of the proceedings of the Academy are so slight that no certain conclusion can be drawn from it.

We have a note by Simplicius, quoted by Field,[2] that Plato used to set the problem to find the simplest mathematical formula to account for the motion of the heavenly bodies consistent with the facts. But this does not mean he always 'stood behind the scenes'. The comic poet, Epicrates, quoted by Jaeger[3] and others, states: "For they marked off in nature and separated the genus of living creatures, the nature of trees, and the kinds of vegetables, and then examined of what kind among these was the cabbage." This seems to indicate that one of the preoccupations of the school was Divisions διαιρέσεις, and this is corroborated by Aristotle's De Generatione et Corruptione 330b13 and De Partibus Animalium 642b10 and the spurious Platonic Epistle xiii.360B, cited by Ross[4] in a similar connection. These passages indicate that one at least of the studies undertaken at the Academy was research, if it can be so called, into the division and classification of the various natural species, and that Plato took part in these investigations since the former quotation from Aristotle states that "We may compare what Plato does in 'the Divisions': for he makes 'the middle' a blend" and the latter mentions ' the published dichotomies' as what Plato is alleged to be dispatching to his correspondent in the Epistle. If Plato could have claimed some share of responsibility in this one department, it is reasonable to suppose as against Cherniss that he made some positive contributions in others, such as in the Doctrine of Ideas.

Hence, Ross[5] gives several arguments against Cherniss' view and cites nine passages from Aristotle in which it is probable that he is referring to sources for Platonism other than the dialogues. We have already mentioned two of these, and of the others the most telling is Physics 209b11-17 with 209b33-210a2, which has already been quoted above.[6] In the former part of the passage Aristotle says that the account of the Participant given in the UNWRITTEN TEACHINGS was different from that given in the Timaeus; in the latter part, he implies that the Participant was the Great and Small in these Unwritten Teachings since this account is contrasted with that given

1. Aristotle 14. 2. Plato and his Contemporaries 39.
3. Op. cit. 19 note 1. 4. Plato's Theory of Ideas 144-5.
5. Op. cit. 142-7. 6. Pages 278-9.

"IN WRITING in the Timaeus", where it is Matter. This is good evidence that Plato did give some sort of oral instruction and that whatever else he may have expounded, he at least spoke also of the Great and Small. If this does not refer to the Doctrine of Idea-Numbers, it is something very much like it. And in this case, since Aristotle could not have drawn his evidence about Idea-Numbers and the Great and Small from the dialogues, but states in the passage from the Physics quoted that Plato called the Participant the Great and Small in his Unwritten Teachings, it is reasonable to conclude that his entire knowledge of Idea-Numbers was drawn from the same source - Plato's oral instruction, which may or may not include his Lecture on the Good to be discussed presently.

Besides Aristotle's evidence, we have Plato himself in Epistle vii, which is generally accepted as genuine.[1] Plato refers to Dionysius' claim to have made a written treatise on Plato's philosophy or some unspecified part thereof and denies the possibility of this, saying, 341C-E:"There does not exist nor will there ever exist any treatise of mine dealing therewith. For it does not at all admit of verbal expression like other studies, but, as a result of continued application to the subject itself and communion therewith, it is brought to birth in the soul on a sudden, as light that is kindled by a leaping spark, and thereafter it nourishes itself. Notwithstanding, of this much I am certain, that the best statement of these doctrines in writing or in speech would be my own statement ....But were I to undertake this task, it would not, as I think, prove a good thing for men, SAVE FOR SOME FEW WHO ARE ABLE TO DISCOVER THE TRUTH THEMSELVES WITH BUT LITTLE INSTRUCTION; for as to the rest, some it would fill with a mistaken contempt, and others with overweening and empty aspiration." Of these rest, Isocrates is meant by those whom it would fill with an empty contempt, as has been pointed out by Post[2]; and obviously Dionysius is referred to

1. Cherniss, Riddle of the Early Academy 13, and Zeller, Plato and the Older Academy 2 note 1, doubt the genuineness of Epistle vii, and Richards, Classical Review XIV.337 and 340, rejects it, in spite of Cicero's reference thereto, because the tone is "vain, egotistical and ineffective". There are, further, certain resemblances between parts of it and Phaedrus 276D, which could thus have served as a source for a would-be forger. On the other hand, Ritter, Classical Review XXV.77 and XXVI.12, while rejecting some of the Epistles and doubting others, accepts iii, vii and viii as genuine. Hackforth, Classical Review XXVIII.232, agrees with this and argues on this basis against Harward, who regarded all except i as genuine, that he should also have rejected ii, since this is generally doubted to-day, Classical Review XLVI.212. Burnet, Greek Philosophy 205-6, accepts all Plato's epistles of any importance as genuine, and so objects to Howald, who accepted only vi, vii and viii as authentic, that as this is half the corpus, it is difficult to see how the other half could have got into the Academic edition of the 2nd century B.C., Classical Review XXXVII 28. As Ross, Plato's Theory of Ideas 139, accepts the latter as genuine, it is difficult to deny its authenticity.
2. Classical Quarterly XXIV.115.

as those filled with overweening and empty aspiration. But our concern is with the few who are able to discover the truth themselves with but little instruction. These, Plato says, would benefit if he were to undertake the task of putting his doctrines in writing or in speech, but he implies they would not require this - they are capable of discovering the truth themselves. Indeed, that is how the knowledge of the Ideas is come by - by continued application to and communion with the subject itself. But note that Plato allows that these choice spirits require some instruction, albeit only a little. Plato is exaggerating when he denies altogether the possibility of any exposition at all, even an oral exposition, since his object is to castigate Dionysius' presumption. But he admits its possibility when he says, "Were I to undertake this task," and that he had undertaken this task to some extent at least is implied by his reservation, "with but little instruction". For these choice spirits are doubtless the Academicians, and while they were expected to discover the truth themselves, Plato, it seems, gave them SOME help.

A similar conclusion may be drawn from Plato's words a little lower down, 344C: "And this is the reason why every serious man in dealing with really serious subjects carefully avoids writing, lest thereby he may possibly cast them as a prey to the envy and stupidity of the public. In a word,...whenever anyone sees a man's written composition...these are not his serious works, if so be that the writer himself is serious." Surely, with this emphasis on written works, it is possible to conclude that Plato did regard his UNWRITTEN instruction as the serious part of his work! At any rate, there is no denying the fact that Plato gave at least one public lecture on the Good, which will be referred to next; why should he not, then, have also given oral instruction in the Academy? And this would be the Unwritten Teachings referred to by Aristotle in the Physics.

ii) Plato's Lecture on the Good. Aristotle, in his evidence on Idea-Numbers, may have drawn on Plato's teachings in the Academy, or he may have drawn on the published texts, to which we shall refer, of Plato's Lecture on the Good, or more probably on both. We have almost no information concerning the content of his Unwritten Teachings specifically, but there is a certain body of evidence drawn from the Lecture on the Good. Let us first examine the accounts given in our evidence of the Lecture and then the accounts given of the contents of this Lecture.

On our evidence, the account which is nearest in time to the event is that of Aristoxenus,[1] quoted by Zeller:[2] "Aristotle said of most of the audience that attended Plato's lectures on the Good, that they came, every one of them, in the conviction that they would get from the lectures some one or other of the things that the world

1. Harm. Elen. ii.30-31. 2. Plato and the Older Academy 285 note 165, translated by Ross, Plato's Theory of Ideas 147-8.

calls good: riches or health or strength - in fine, some extraordinary gift of fortune. But when they found that Plato's reasonings were of mxkx mathematics - numbers, geometry and astronomy ϕ-and to crown all, to the effect/that there is one Good,[1] methinks their disenchantment was complete. The result was that some of them sneered at the thing, while others vilified it." This extract shows that this Lecture, or rather lectures as Ross points out ad loc.,[2] was not so much concerned with ethics - the Good - as with, inter alia, NUMBERS, and, if we follow Ross' suggestion,[1] that the One is the Good.

Of the/later commentators, the only one who seems to have seen the De Bono, Aristotle's recorded notes of the Lecture or lectures, is Alexander.[3] He is reported to have said:[4] "Alexander says that according to Plato the principle of all things and of the Ideas themselves are the One and the unlimited dyad, which he called the Great and Small, as Aristotle narrates in his account of the Lecture on the Good. One might corroborate this from Speusi/ppus, Xenocrates, and the others who were present at Plato's lecture. For all wrote it down and preserved his opinion and they say he used these principles." Here we see that Plato's pupils, who were present at the lectures. wrote down what was said, so that Aristotle's De Bono here referred to was a report of what Plato said. Thus, anything drawn from this book would presumably go back to Plato himself and be evidence independent both of Aristotle and of Plato's dialogues. And here we have it that the principles of all things AND OF THE IDEAS THEMSEEVES were the One and the Great and Small, and this is the more valuable in that Alexander claimed that the same account, in this respect, as Aristotle's was to be found in the lecture notes of others who were present, such as Speusippus and Xenocrates. Of the notes of these two we have no further trace, but we have one more presumably independent record of this Lecture.

Simpl/icius quotes Porphyry, whose source was Dercyllides,[5] thus: "The Unlimited is both in sensible things and in Ideas. For they say that Plato called the principles also of sensibles the One and the indefinite dyad. He said that the indefinite dyad, which he placed in intelligibles, was unlimited, and unlimited also the Great and Small which he posited as principles; so he said in his lectures on the

1. Milhaud, Les Philosophes Géomètres de la Grêce 194, translates "The Limit is identical with the Good," but Cherniss, Riddle of the Early Academy 1 note 2, points out that Τὸ πέρας is adverbial, and cannot mean this. Him Ross follows, Plato's Theory of Ideas 244 but thinks that Aristoxenus should rather have said "One is the Good" and not "There is one Good."
2. Cp. Ross, op. cit. 148:"There is no need to limit the unwritten teachings that Aristotle knew to one course, but his knowledge seems mainly derived from that. I say 'course' rather than 'lecture' because that is what the references point to." This seems to be directed against Cherniss, op. cit. 2, that the De Bono was a lecture and not a series of lectures.
3. Allan, Classical Review LXV=N.s.1.28-29, cp. van der Wielen, Die Ideegetallen van Plato 8 note 9. 4. Aristotle, fragment 28 (Rose)
5. Cherniss, op. cit.12 note, who makes much of the 'enigmatic form'.

Good, which Aristotle and Heraclides and Hestiaeus and other friends of Plato who were present wrote down verbatim in the enigmatic form in which it was said. Porphyry wrote about these matters and professed to explain them in his Commentary on the Philebus, thus:....That is what Porphyry said, following the words of the speech closely and professing to explain what was expounded in an enigmatic form in the Lecture on the Good. He said also that it accorded with what was written in the Philebus. And Alexander also, in his Commentary on Plato's Lecture on the Good, agrees. Quoting what Alexander and other of Plato's friends narrate, he wrote thus....."[1] This rather fuller account indicates that among the audience were friends of Plato, and that what was there said was said enigmatically, not that Aristotle or Dercyllides found it enigmatical. Doubtless Plato deliberately gave his exposition an enigmatical form in certain places because it was not for the Many. His friends, I think, would have been able to understand what was said, but when even what is familiar is deliberately expounded in riddles, anyone taking notes is practically obliged to take it down verbatim, leaving it to his leisure to interpret the meaning behind the enigmatic form. Simplicius doubts Porphyry's success in interpreting the verbatim account, which may very well be so, but as Simplicius himself never had access to the De Bono[2] he was hardly in a position to judge. At any rate, Alexander arrived at the same conclusions as Porphyry, so that, despite Cherniss, the Lecture could not have been so very unintelligible after all. At all events, the above passage corroborates the previous one in that the principles of both sensibles and Ideas were the One and the Great and Small, which is an Unlimited. It is implied in the earlier part of the quote that the indefinite dyad which Plato places in intelligibles was different from the Unlimited from which sensibles are composed. Further, Porphyry made out that this doctrine is to be found in the Philebus. This confirms firstly that Aristotle's evidence in Metaphysics A.vi that the elements of the Forms and of sensibles are the One and an indefinite dyad of the Great and Small is correct, viz. that it goes back to what Plato said in his Lecture on the Good, and secondly that the identification of the Unlimited of the Philebus with the Great and Small (at least that phase of it which is in sensibles), which we have made above was justified. And that this doctrine was in effect an identification of Ideas with Numbers in respect of their origin, which could not be established from the dialogues, seems to be borne out by these two parallel passages in Aristotle, fragment 28 (Pos[illegible]):"In his De Bono, Aristotle says that Plato posited the One and the dyad as the principles of NUMBERS and of all real things,"[3] and "Alexander says that according to Plato the principles of all things and of the IDEAS themselves

1. Simplicius in Phys.104b in Aristotle, fragment 28 (Rose)
2. See page 288 note 3 above. 3. Alexander in Ar.Met.42,22.

are the One and the indefinite dyad."[1]

iii) More Detailed Evidence on Plato's Doctrine of Idea-Numbers.

On the previous page we quoted Simplicius, leaving a lacuna in respect of his record of what Porphyry said about the Unlimited. This lacuna runs as follows:"Plato himself classes the more and the less and the exceedingly and the slightly as belonging to the class of the Unlimited.[2] For whenever these are present, advancing in respect of intensification and relaxation, that which shares in them does not come to a stand and to a limit, but goes on to the indefiniteness of infinity. So it is with the greater and the less, and with the Great and the Small, which Plato uses as their equivalents.[3] Let us take some limited magnitude, e.g. a cubit, and let it be bisected; if we left the one half cubit undivided, but divided the other and added it little by little to the undivided part, the cubit would have two parts, one diminishing and the other increasing, without limit. For in dividing the cubit we should never come to an indivisible part, since the cubit is a continuum and a continuum is divided into perpetually divisible parts. Such an unceasing process of cutting revaals a certain infinity enclosed within the cubit, or rather, more than one, the one advancing towards the Great and the other towards the Small."[4]

The meaning of this is clear enough: the Great and the Small is a continuum, and is thus infinitely divisible and indefinitely extensile. The exact same example to illustrate such a continuum is used by Aristotle in Physics 206b3-33,[5] and the question is whether Porphyry simply borrowed this illustration from the Physics, or whether both Aristotle and Porphyry were drawing on an example actually used by Plato himself, possibly in the Lecture on the Good.[6] In either case, Porphyry's application of the example seems to be erroneous. The Small, certainly, is well enough illustrated as infinitely divisible: the limit of the series in question is 0. But since, on the other pole, the limit of the series is 1, how can this illustrate the Great? Aristotle ad loc. cites the example to show

1. Simplicius in Phys.32B. 2. This clearly is a restatement by Porphyry of Philebus 24E-5A:"All things appearing to become more or less, to admit of the exceedingly and the slightly and excessive and the like, are in the Class of the Infinite."
3. This is Porphyry's comment explaining why the More and the Less are classed with the Infinite. The 'greater and the smaller' is one of the terms used in Philebus 25C, the Great and Small is taken from the Lecture on the Good. Porphyry used this to show the fundamental agreement of the Philebus with the Lecture on the Good. As this is Porphyry's own comment, it need not go back to Plato - probably it did not, as we shall argue presently.
4. Translated by Ross, Plato's Theory of Ideas 199-200.
5. See page 103 above. 6. So van der Wielen, Die Ideegetallen van Plato 121ff, uses the illustration as an image of the generation of Ideal Numbers. Brommer, Mnemosyne XI.iv.271 & 289, criticises this as a misapplication: how can the Unlimited be an image of the nature of Ideal Numbers? This criticism seems to me to be justified, and yet Ross, Plato's Theory of Ideas 199-201, commends van der Wielen in this matter.

the essential similarity between the infinite by addition and the infinite by division - the one is the inverse of the other. For this reason,[1] Plato made the infinites two in number, and Aristotle's words here imply that the Great was what exceeded all limits, i.e. its limit is infinity. Thus, Porphyry misses the point - this example does not illustrate the Great and the Small, but only the Small. Nor has this example anything to do with the Philebus. Since Aristotle criticises Plato's use of his two Infinites,[1] saying that his smallest number was the Monad and his greatest the Decad, in neither of which is the Infinite present, this example of infinity must illustrate the substrate of Ideal Numbers, if it illustrates any of Plato's elements at all. But the More and the Less, or the Greater and the Smaller, of the Philebus refers to the substrate of sensible things, not of Ideal Numbers. Hence, Porphyry's explanation is erroneous, which is perhaps why Simplicius, who was not impressed, said, "professing to explain them."[2]

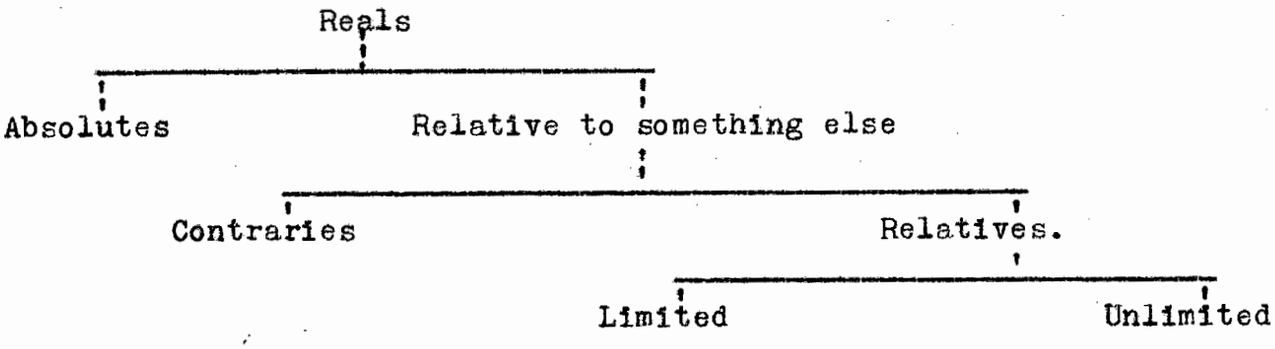
Thus, all I would accept of Porphyry's evidence in this matter amounts only to this: there is a resemblance between what Plato wrote in the Philebus concerning the Unlimited as the matter of sensibles and what he said in his Lecture on the Good about the Great and the Small. In its rôle as substrate of Ideal Numbers, the Great and Small was an infinitely divisible continuum. This adds no more to our knowledge than what could be gained from Philebus 24E-5A and Aristotle's Physics 206b3-33.

As a source independent of the Peripatetic tradition and at the same time very close, chronologically, to Plato, is Hermodorus, one of Plato's pupils and his biographer, who is quoted by Simplicius:[3] "When Aristotle says that Plato named Matter the Great and Small, one may add that Hermodorus said that Plato, positing Matter according to the unlimited and the indefinite, made it out to be one of those things which receive the More and the Less, among which is also the Great and the Small. For Hermodorus said of Reals, Plato makes some absolute, like Man and Horse, others relative to something else, of which some are contraries like good to evil, and others are relative, of which again some are limited and others indefinite. He continues that all those things which are named like great to small have the More and the Less; for it is More to be greater and less indefinitely. In this way also the broader and narrower, the heavier and lighter, and all things named thus, are thought to belong to the Unlimited. Things like the Equal and Rest and the Fit do not have the More and the Less, but their opposites do. For the Unequal is more than the unequal, the Moving than what is moving, and the Unfit than the unfit, so that of these pairs all

1. Physics 206b28-33. 2. See page 289 above.
3. Quoted by Zeller, Plato and the Older Academy 242 note 47, and by van der Wielen, Die Ideegetallen van Plato 113-5.

terms except that of the element, the One (i.e. the Equal) receive the More and Less, and the unstable and shapeless and unlimited and Not-Being are named by negation of the One. It suits such a thing to have neither principle nor essence, but to be borne in a sort of indeterminateness."

At first brush, what is here expounded seems to be a dichotomy like this, and so van der Wielen[1] interprets it:



But I do not think so, for Hermodorus says that not only do things named like great to small have the More and Less, but also the opposites of things like Equal and Rest. In other words, the More and the Less comprise two classes, contraries relative to each other like Great and Small, and relatives which are unlimited like the Unequal and the Moving. This leaves us with three classes,[2] of which one has two subdivisions, thus:

A. Absolutes like Man and Horse;

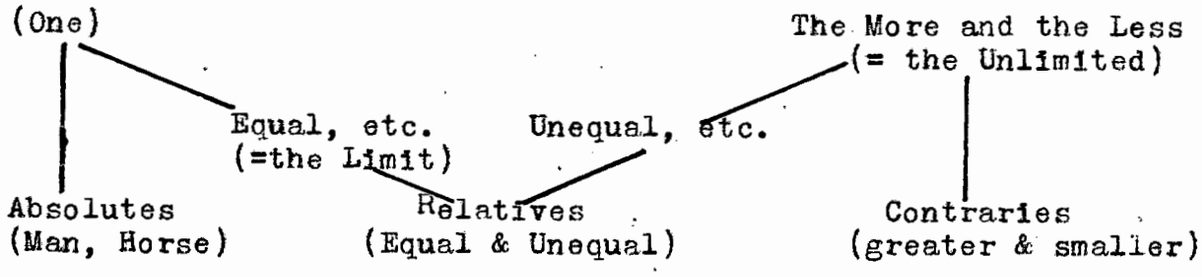
B. Limits like Good, Equal, Rest and Fit;

C. Unlimiteds, which comprise a) Contraries like greater and smaller, broader and narrower, heavier and lighter; and

b) Relatives which are the opposites of the Limits of B, like Evil, Unequal, Motion, the Unfit.

The last class, C, is said in the quote to have been Plato's Matter, and subdivision a) at least agrees with the Unlimited of the Philebus

Now both the things named like great to small and such opposites as the Unequal, etc,, have the More and the Less, which is thus a more general conception than either the Unequal or the Contraries, and in order to make a comparison with a scheme which will be given below, the above can be set out in the following form:



I have placed 'One' in brackets, because it is implied as a more general concept behind the Equal by the parenthesis in the quote above

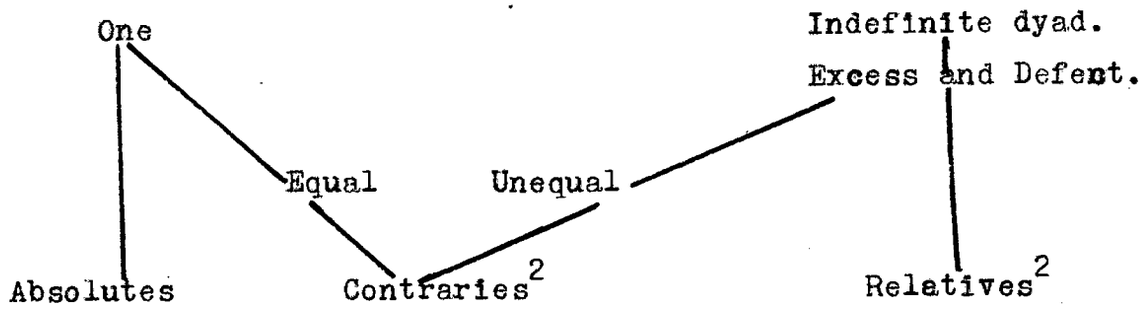
1. Die Ideegetallen van Plato 115-6. 2. Cp. Allan, Classical Review LXV.29:"A threefold division of Reality into independent entities, contraries and relational terms".

This extract is not based on the Philebus, at least not exclusively. The terms 'evil' and 'motion' belong rather to the same sphere of thought as the disorderly motion and recalcitrant nature of Necessity in the Timaeus - for the Philebus confines its exposition to the pleasanter and more perfect aspects of nature. We have something similar in a fragment of Eudemus:[1] "Plato calls the great and the small, the non-existent and irregular and all things which through these incline to the same place, Motion. But it seems absurd to call this very thing Motion. For when Motion is present, that which is in it appears to move, but though Unequal or Irregular exists, to insist that it moves is ridiculous." The pair broader and narrower, again, has a reference to plane surfaces that is not found in any dialogue, but recalls Aristotle's evidence in this respect.[2] Lastly, the term Unequal reminds us of much of Aristotle's testimony concerning the numerical side of Plato's Idea-Numbers, where it is often opposed to the Equal, sometimes to the One. Hence, we have here some part of an exposition by Plato which goes beyond anything found in the dialogues and seems to unite in one doctrine strands of thought which are expounded from one limited aspect in each the Philebus, Timaeus, and parts of the Oral Teaching But the quote is not a complete exposition, and further detail is given by Sextus Empiricus.

The relevant part of Sextus Empiricus[3] runs as follows:"All things were divided into three groups. i) Absolutes like Man, Horse, etc., ii) contraries like Good, Bad, etc., iii) relatives like Greater and Smaller, More and Less. The second was distinguished from the third group by two characteristics: a) the genesis of one of the two contraries is the destruction of the other, while the destruction of one of two relatives is the destruction of the other,[4] and b) there is always a mean between two relatives, but never a mean between contraries. The One was treated as the generic nature of everything in the first group. The Equal and Unequal were genera under which all contraries fell, e.g. Rest under Equal because it does not admit differences of degree, but Movement fell under the Unequal because it admits of such differences. Relatives fell under the genus of Excess and Defect. But while the Equal and Unequal together formed the genus under which contraries fell, the Equal itself fell under the genus of the One (because the equality of the One with itself is the primary case of Equality), and the Unequal fell under the heading of Excess and Defect. Finally Excess and Defect involve two things of which one exceeds the other. Thus the One and the indefinite dyad emerged as the supreme principles."

1. Diels 35A23. 2. Metaphysics 992a10-16 & 1085a9-13.
3. Cited and translated by Ross, Plato's Theory of Ideas 185-7.
4. This is just that distinction of Prior and Posterior mentioned by Aristotle as Platonic in Metaphysics 1019a1 and which Ross, op. cit. 145, takes as evidence for the Oral Teachings, since this distinction is not found in the dialogues.

This threefold division is essentially the same as that of Hermodorus, except for the terminology and the greater detail given by Sextus, whose account is, in fact, a more thorough-going analysis leading back to more ultimate principles than the former. This will appear at a glance from Ross' scheme,[1] as follows:-



This goes beyond Hermodorus' evidence in several respects. The Absolutes are here led back, like the Equal or Limit, to the One. Excess and Defect or the More and the Less (=the Unlimited) is led back to the indefinite dyad. But before going on to attempt an interpretation of this account, we must mention the evidence of Alexander.

A third passage along these lines is that assigned to Alexander in Aristotle fragment 31 (Rose):"Almost all things lead back to the principle, and the One and Plurality (lead back) from the selection of contraries....as Aristotle has said in De Bono II...In some way all the contraries lead back to the One and Plurality." Here Plurality replaces the indefinite dyad, (which I do not think was Plato's own term, but crept into the evidence from the term used by Xenocrates, just as Plurality is the term used by Speusippus), but the thought is the same - two ultimate principles to which each of a pair of Contraries, inter alia, lead back, for Alexander is silent in respect of Absolutes and of Relatives.

What does all this mean? The fact that Hermodorus uses the term Limit to designate the class of Equal, etc., and Unlimited for the class of More and Less or Excess and Defect, seems to indicate that he has the Philebus in mind. Here these terms represented the Ideas as formal elements of sensibles and the material substrate respectively. In the Philebus, however, this material substrate, the Unlimited, is described in terms that suit only one of Hermodorus' two subdivisions of the Unlimited, the Great and the Small, to use one of his examples. But the other subdivision, Motion and Evil, etc., is hinted at in the Timaeus as the condition of the Receptacle prior to the formation of the Cosmos, and a more complete exposition of Platonism would doubtless include both classes under Matter or Excess and Defect. But Plato also dealt with the Ideal World, and Sextus shows that the formal element of Ideas, whether of such a nature as the Equal, which is itself the formal element of equal things, or of Absolutes such as Natural Kinds, is the One, while the

1. Plato's Theory of Ideas 186. 2. The terminology here is different from that used in the previous evidence, where Relative is divided into Equal and Unequal as Contraries are here.

material substrate is shown to be a sub-type of a more general principle, an indefinite dyad, which is not said to be the substrate of the Ideas, but may well be, and is commonly testified to as such by Aristotle. The fact that Alexander calls this Plurality seems to corroborate our contention that these ultimate principles, the One and the indefinite dyad or Plurality, were the elements of Number, so that by reason of their derivation from these same elements Ideas are Numbers.

We now turn to a different group of evidence, commencing with that of Theophrastus:[1] "Most people go to a certain point and then stop, as do those who set up the One and the indefinite dyad; for after Numbers and Planes and Solids they leave out almost everything else, except to the extent of just touching on them and making this much plain, that some things proceed from the indefinite dyad, e.g. place, the void, and the infinite, and others from Numbers and the One, e.g. soul and certain other things....but of the heavens and the remaining things in the universe they make no further mention; and similarly the school of Speusippus does not do so, nor does any of the other philosophers except Xenocrates; for he does somehow assign to everything its place in the universe, alike objects of sense, objects of reason or mathematical objects, and divine things as well...Plato in reducing things to the ruling principles might seem to be treating of the other things in linking them up with the Ideas, and these with the Numbers, and in proceeding from the Numbers to the ruling principles, and then following the order of generation as far as the things that we have named."

This passage has become a locus classicus because Robin[2] has used it to give an interpretation of Plato's Doctrine of Idea-Numbers according to which Ideas are subordinate to Numbers, in fact, Numbers are the formal causes of Ideas. This he corroborates from the Philebus, by interpreting the Limit, which appears there as Ratios, as determined by these Numbers. But this cuts directly across Aristotle's evidence, and Theophrastus, as Aristotle's pupil, must surely have got his information from him, so that this interpretation seems prima facie to be incorrect. For Aristotle identifies the Ideas with Numbers, and posits the One and the indefinite dyad as the elements of both Ideas and Numbers. Ross,[3] however, follows Robin, and thus tacitly dismisses van der Wielen's[4] refutation of Robin's interpretation, whereby van der Wielen confines Ideas to Ideal Numbers, so that to put Numbers on the highest grade of reality is tantamount to putting Ideas highest, and takes the lower grade of 'Ideas' as not true Ideas at all, but as quasi-Ideas such as the Triangle, etc., which are actually What-come-after-the-Numbers. In other words, what Theophrastus said is correct and is to be under-

1. 6a23-b15, translated, except for the last portion, by Ross, op. cit.216. 2. Platon 147. 3. Op. cit. 216. 4. Op.cit. 153.

stood as he says it, Numbers are the highest grade of reality and Ideas stand at a lower level; but by Ideas Theophrastus means not THE Ideas - these are in fact the Numbers - but Ideal Magnitudes. In this way van der Wielen finds corroboration for his thesis that there were only four Idea-Numbers, 1,2,3,4.

I believe that van der Wielen is on the right track in his interpretation of Theophrastus. The key part of the passage is the last part where Theophrastus says that Plato links up things with the Ideas and these with the Numbers, and proceeds from Numbers to the ruling principles. The balance of the sentence requires that, as the Ideas are the formal elements of things, so the Numbers are the formal elements of the Ideas, and again the elements of Numbers are the One and the indefinite dyad. Now Aristotle identifies the Ideas with Numbers and posits the One and the indefinite dyad as the elements of both Ideas and Numbers, i.e. of Idea-Numbers. Hence, when Theophrastus says Plato proceeded from Numbers to the ruling principles, what is meant is that he sought in the One and the dyad the ruling principles of Idea-Numbers. The use of the word 'Numbers' is especially appropriate because Theophrastus, I believe, is thinking of one particular class of Idea-Numbers, as will be shown - viz. the Idea-Numbers 2,3, and 4. In this I follow van der Wielen, but I disagree that these were the ONLY Idea-Numbers. The One and the dyad were the principles of all Idea-Numbers whatsoever, but Theophrastus has in mind only a very special class thereof, 2,3 and 4, as was said. Again, I agree with van der Wielen that by 'Ideas' is here meant the Idea of Line, that of Plane and of Solid, whether or not plato actually called them Ideas or merely 'the things after the Numbers.' That Plato led these Ideal Magnitudes back to the Numbers 2, 3 and 4 means simply, as van der Wielen has shown,[1] that the formal element of the Line is the Idea-Number 2, of the Plane 3, and of the Solid 4, as is independently witnessed in De Anima 404b16-27.[2] But just as 'Numbers', while here referring only to 2, 3 and 4, are yet not the only Idea-Numbers, so also 'Ideas', while here referring only to the Line, Plane and Solid, have also a wider connotation in that the statement is true in general that things are led back to Ideas. Hence, Theophrastus confirms the evidence of Aristotle that Plato led things back to Ideas and that the elements of the Numbers were the One and the dyad, but in his statement that he linked up Ideas with Numbers he is referring only to one class of Ideas and to one class of Numbers, namely, that the formal elements of the Line, Plane and Solid were 2,3 and 4 respectively. And just because Theophrastus has a special class of Ideas in mind, this is no evidence that Plato regarded Numbers as standing on a higher grade of reality than Ideas in general.

1. Op. cit. 152. 2. Ross, Plato's Theory of Ideas 210.

If it be thought that my interpretation is far-fetched, glance again at Theophrastus' words:"Most people go to a certain point and then stop....for after NUMBERS AND PLANES AND SOLIDS they leave out almost everything else, except to the extent of just touching on them." Thus, when he concludes, after mentioning what Xenocrates had done, "Plato,..might seem to be treating of the other things in linking them up with the IDEAS AND THESE WITH THE NUMBERS", he is reverting to his original reservation - Plato did not go very far in his reduction of things to elements, except that he linked up Planes and Solids with Numbers, sc. with 3 and 4 respectively.

One further point explains perhaps what Aristotle had in mind when in Physics 209b11-17 and 33-210a2[1] he said that the Participant and Space are identical in the Timaeus but in his Oral Teachings it apparently is Place, and there the Participant is the Great and Small. Theophrastus says that Place and Void (=Space?) proceed from the indefinite dyad,[2] which van der Wielen[3] interprets to mean that Plato derived Place from the Great and Small. That is, the Great and Small as material substrate was described as the Participant and from this was derived Place; in the Timaeus the Receptacle is in one place described as Space for a special purpose, and so Aristotle identifies this Space and that Place.

Ross[4] accepts Robin's interpretation of Theophrastus because he is confirmed by a passage from Sextus Empiricus, Adv.Math.258, but this is not really so. The passage reads:"The Ideas, which are incorporeal, are according to Plato prior to bodies, and each of the things that come into being is modelled on them; but they are not the first principles of existing things, since while each Idea taken separately is said to be a unity, by virtue of its inclusion of another or other Ideas it is said to be two or three or four, so that there is something higher than their nature, namely Number, by participation in which 'one' or 'two' or 'three' or yet higher Numbers are predicated of them." But apart from the fact that we are here dealing again with a particular case - the number of the μεσά - Sextus does not say that Plato held that Numbers are higher than Ideas: he deduces the priority of Number because, obviously in Division, any Idea not an infima species is a numbered many - the genus including two or more species. The passage, in fact, reminds us of Philebus 16D-17A:"We must thus always assume that there is in every case one Idea of everything and look for it, then for two or three, and treat each such unit in the same way until we see not only that the original unit is one and many and infinite, but how many it is." But as THE Idea par excellence is the infima species, Number does not enter into it in this way, but only into Ideas which are genera or sub-genera, the μεσά. But in any case, such Numbers are not essential but only incidental to these Ideas.

1. See pages 278-9 above. 2. Cp. Metaphysics 1084a33:"They generate Void....within the Decad." 3. Op. cit. 184. 4. O.c.216.

Corroboration of Aristotle from the Independent Evidence. The evidence quoted above is mostly drawn from Plato's Lecture on the Good, either from Hermodorus' notes or, in most cases, from Aristotle's, and so is independent both of Aristotle's own interpretation of Plato, and of the dialogues. This evidence corroborates Aristotle in the following respects.

i) In Metaphysics A.vi, especially 987b18-22 and 988a10-14, Aristotle asserts that the elements of the Forms are the elements of all things, the Forms being derived from the One and the dyad of the Great and the Small, things from the Forms and the Great and Small. So Hermodorus says that the Matter is the More and Less, in which is to be included the Great and Small. One phase of this is the Unlimited, which in the Philebus is the material element, while the Equal he identifies with the Limit, the formal principle, and this again with the One. Sextus Empiricus is clearer: the ultimate principles are the One and the indefinite dyad, the One and Plurality according to Alexander, and the One and the indefinite dyad according to Theophrastus, who adds that Numbers are led back to these, and things are led back to Ideas. In spite of the variant terminology, these accounts have in common that the ultimate elements are the One and an indefinite dyad, whose nature is that of Excess and Defect or More and Less, and is named Great and Small by Hermodorus.

ii) Aristotle understood Ideas to be Numbers in respect of their derivation from the same elements as Number. This is hinted at by Theophrastus when he says that Plato led back the Numbers to the One and the indefinite dyad. The same thing seems to be meant in Aristotle fragment 28, quoted above on pages 289-90, where the One and the indefinite dyad are the principles of Ideas in one place, of Numbers in another.[1]

iii) We found the analogue of the Great and Small in the Unlimited of the Philebus; so Porphyry and perhaps Hermodorus, judging from his use of the terms Limit and Unlimited in a similar connection.

iv) The generic nature of the Great and Small as including or embodying the species Long and Short, Broad and Narrow, Deep and Shallow, etc., is given by Aristotle in Metaphysics 992a10-16 and 1085a9-13. Similarly, according to Sextus, the indefinite dyad is a more general term embracing both Excess and Defect, among which is listed the greater and smaller, the Unequals, and Hermodorus likewise gives the More and Less a generic connotation, among which is included the greater and smaller, and the broader and narrower.

v) Sextus also cites the Unequal, in which respect Hermodorus agrees with him, as the principle of one of the two terms constituting Contraries, and it is itself a sub-type of the dyad. It is possible

1. Cp. the ringing of the changes between 'Ideas' and 'Numbers' in Metaphysics A.vi and especially 987b22, "from the Great and Small, by participation in the One, come the Numbers," where we expect XE 'Ideas'.

that this refers to the same alternative nomenclature used of the Great and Small in 1087b7-9 and the other references cited on page 117 above, viz. the Unequals. But the evidence is too fragmentary to make out in what connection this Unequal stands to Plato's generation of Numbers,[1] in which connection Aristotle cites it.

vi) Finally, there are some grounds for finding corroboration of Aristotle's interpretation of Participation as the relation of sensibles to Ideas as copies ~~of~~ to a model in Sextus Empiricus, quoted on page 297 above:"Each of the things that come into being is modelled on them." With this compare Diogenes Laertius III.13, possibly an interpolation:"Hence, Plato says that Ideas stand in nature as archetypes, and that all things else bear a resemblance to the Ideas because they are copies of these archetypes." Also Theophrastus ~~xxx~~ 11a27ff:"Plato and the Pythagoreans make the distance between the real and the things of nature a great one, but hold that all things wish to imitate the real."

1. As a suggestion, it may be that, since in the case of Contraries the generation of one term is the destruction of the other, the generation of the Numbers was grouped under Contraries rather than under Absolutes. Each successive term, then, when it was generated, would be subsumable under the Equal, and the 'Matter' out of which the Numbers were generated under the Unequal.

Chapter 3. The Question of Pythagorean Influence.

i) Evidence of Plato's Contacts with Pythagoreans.

a) The External Evidence.

The evidence for Plato's contacts with Pythagoreans turns chiefly about his first visit to Italy and Sicily, 388-7 B.C. Diogenes Laertius III.6 states that he went "to Italy to see the Pythagorean philosophers, Philolaus and Eurytus," but this can hardly be correct. As Miss Freeman[1] says, the tradition that he acquired the book or books of Philolaus, from which he copied the Timaeus,[2] imply that he did not meet Philolaus. However, there may be this much truth behind Diogenes' statement, that Plato went to Magna Graecia to see some one or other of the Pythagorean philosophers, whether or not he had the additional motive attested somewhere[3] by Diogenes of wishing to see the island and the craters of Etna, and that, since definitely Eurytus and probably also Philolaus belonged to the school of the Auditors,[4] the school in question was that of the 'Italian philosophy'.[5]

An apparently more reliable account[6] is that given by Cicero. So in his Tusculan Disputations I.xvii.39, we read: "The story goes that Plato came to Italy to study the Pythagoreans and he learnt all the Pythagorean doctrines." This is made more explicit in De Republica I.x.16: "After Socrates' death, Plato went on journeys, first to Egypt for purposes of study, and later to Italy and Sicily in order to become acquainted with the discoveries of the Pythagoras; and he spent a great deal of time in the company of Archytas of Tarentum and of Timaeus of Locri, and also got possession of Philolaus' notes. And as Pythagoras' reputation was then great in that country, he devoted himself entirely to that teacher's disciples and doctrines." Also in De Finibus V.xxix.87: "Were it not so (that the system of the philosophers gives us happiness), why did Plato...visit Archytas at Tarentum, or the other Pythagoreans, Echecrates, Timaeus and Arion at Locri, intending to append to his picture of Socrates an account of the Pythagorean system and to extend his studies into those branches which Socrates repudiated?"

It is difficult to decide how much of this can be accepted as true. The mention of Timaeus of Locri seems inspired by Plato's dialogue, the Timaeus, since we have concluded that he was not an historical character, and the story of his having got possession of Philolaus' notes is highly dubious.[2] It seems more likely that the whole tradition had been invented to account for recognised traces of Pythagorean influence in dialogues posterior to Plato's first voyage, coupled with his known relations with Archytas, as witnessed

1. The Pre-Socratic Philosophers. A Companion to Diels 221.
2. This story is told with variations in Diels 32A1, 8 and elsewhere, but seems to have been a libellous invention, cp. Gellius in 32A8, and Field, Plato and his Contemporaries 176.
3. Diogenes Laertius III.18. 4. See pages 171-3 above.
5. His evidence goes back ultimately to Theophrastus, see Burnet, Early Greek Philosophy 423-4. 6. Classical Quarterly XVIII.135.

by several of Plato's epistles, and especially the seventh. Even so, the tradition, as we have seen, is not unanimous that it was Archytas alone whom Plato went to visit, as one would expect if the tradition was based entirely on the epistles, and as the dialogue which seems to have been uppermost in the mind of the putative inventor of the story is clearly the Timaeus it is not altogether clear why such a one should have selected the first voyage as the occasion for this visit, since he would surely have had more means of ascertaining the date of composition of the Timaeus than we have. Hence, there seems to be some grain of truth in the tradition, namely, that Plato made his first voyage in order to make the acquaintance of Archytas.[1] Hence, Aristotle is so far corroborated, when he ascribes Plato's Doctrine of Idea-Numbers to a 'following of the Italian philosophers', that the external evidence indicates that Plato went to Italy in 388 to make the acquaintance of Archytas, learn his discoveries and use them, as he is implied to have done in at least the Timaeus.

b) The Evidence of the Dialogues.

As our concern is with the 'scientific' rather than the 'religious' side of Pythagoreanism,[2] I shall dismiss the latter by citing Ross,[3] that Plato learnt about Philolaus from Cebes and Simmias, and Black[4], that Plato could have learnt all the Pythagoreanism of the Phaedo and Gorgias from refugee Pythagoreans of the mainland.

There are, in the first place, certain mathematical references in some of the early dialogues. Thus, "Fear is a more extended notion, and reverence is a part of fear, just as the Odd is a part of Number, and Number is a more extended notion than the Odd...If you had asked me what is an even number, and what part of Number the Even is, I should have had no difficulty in replying, a number which represents a figure having two equal sides."[5] This translation, however, omits an important distinction, and I would rather translate the last part of the passage thus:"I would say it is that which is not scalene but isosceles."[6] Now the parts of Number are given as the Odd and Even, and as the Even is isosceles the Odd must be the scalene.[7] Isosceles means, literally, 'with equal legs', and scalene 'limping', and this suggests a setting out of Numbers thus - ::: = 6, :::. = 7. This we took to be Italian on page 44 above.

1. So Field, op.cit.14 note 1, cp. Raven, Pythagoreans and Eleatics 78. 2. See page 8 above. 3. Plato's Theory of Ideas 160 note 4.
4. Classical Review LXV= N.S.1.87. 5. Euthyphro 12CD.
6. εἶπον ἂν ὅτι ὃς ἂν μὴ σκαληνὸς ᾖ ἀλλ' ἰσοσκελής.
7. Frank assigns this terminology to Theodorus, connecting it, on the strength of the Theaetetus, with Irrational Number. This is unlikely. The terminology does not correspond to Theaetetus 147E-8A, where Numbers are divided into Square and Oblong, the former equal-sided, the latter of various lengths. This implies a setting-out of Numbers as plane figures, which is quite different from that in Euthyphro, nor could oblong be regarded as limping, since while its length is greater than its breadth each pair of sides is after all of equal length.

Another passage is Meno 76A:"Do you call something a surface and another thing again a solid, like those used in geometry?.... In a word, I should say that 'figure' is the limit of a solid". This might seem to be an allusion to Eurytus, who constituted solids as Extension defined or limited by surfaces, but the context mentions prodicus, and he might well have taught geometry: "Do you call an end something? I mean some such thing as a limit or extreme - I mean that all such things are more or less the same, but perhaps Prodicus would beg to differ from us..."[1] Socrates, we know, took a course from Prodicus, albeit a cheap one, and Plato himself may well have learnt his geometry from a wandering sophist. In any case, the next reference as good as assigns the Platonic Socrates' geometry to the sophists.-"The sophists call this the diameter (= diagonal)".[3] Surely the sophists would have taught the whole science of geometry and not merely the name of one line; indeed, geometry seems to have been an autonomous science, and not merely the arcana of the Pythagoreans, as is clear from Meno 86E-7B, especially the beginning: "I mean the method of hypothesis, such as the geometers often use..."[4]

Thus, I conclude that, in these geometrical and arithmetrical references, even where the terminology agrees with that used by the Italian school as in Euthyphro 12CD, we are not compelled to see a knowledge by Plato of Pythagoreanism, but that what we have here is really geometry, and doubtless arithmetic also, as an autonomous science, probably taught by wandering sophists. Indeed, with two exceptions which will be discussed and explained presently, it is safe to say that in the dialogues prior to the first visit to Italy Plato shows no knowledge of the 'scientific' doctrines of the Italian school, as distinct from the Pythagorean religious teachings.

Plato's sole mention of the Pythagoreans by name is in Republic VII.530C-1B.[5] Here the Pythagoreans are distinguished by their connection of harmonics with astronomy (530D),in which they proceed empirically, measuring consonances and tones which we actually hear (531A) by the measurement of strings (531B), in contrast to those who use the ear only (531A), the folly of which is shown by the contradiction between the school of Agathon, who denied any difference between two consecutive enharmonic quarter-tones, and that of Democritus, who used just this interval as the basis of an additive theory of music. Plato's own method is quite different (531C): he seeks to find consonant numbers a priori and why they are consonant and despises Pythagorean empiricism as on the same level as the

1. Meno 75E. 2. Meno 96D. 3. Meno 85B. 4. Compare Republic VI.510C: "You are aware that students of geometry, arithmetic, and the kindred sciences, assume the Odd and the Even, and the figures, and three kinds of angles and the like in their several branches of science; these are their hypotheses, which they and everybody else are supposed to know." 5. This has been well explained by Frank, Plato und die sogenannten Pythagoreer 150-162.

geometer's measuring of a diagram to solve a theorem. This, as shown by the characteristic connection of harmonics with astronomy,[1] shows that the Pythagoreans in question are more precisely the Italian school.

A further reference to this school is the musical one in Republic III.400A:"For I should lay it down, saying that there are three principles of rhythm, from which the metrical systems are framed, just as in sounds there are four notes whence all harmonies are composed." The four notes from which all harmonies are composed are clearly those standing in the relation of fourth, fifth and octave, related proportionally as 6 to 8 to 9 to 12. The ratios in question seem, from the evidence we have, to have been known to the early Pythagoreans, but further investigations along these lines were characteristic of the Auditors, such as Hippasus[2] and Archytas,[3] and it is probable that Plato had the latter in mind. However that may be, it is possible that the conception of the soul as harmony belongs here, as in Phaedo 85E-6D, for music is of importance in education for its introducing harmony into the soul, as in Republic III.~~401B~~ 401D, which follows shortly after the preceding quote - the soul must reflect the harmony of the Cosmos and make audible the harmony which is visible in the heavens. Here again is the characteristic connection between harmonics and astronomy,[1] and we find the same with the addition of arithmetic in Theaetetus 145CD:"I should like to ask what you learnt of Theodorus: something of geometry, perhaps? - Yes. - And astronomy and harmony and calculation." In Phaedo 98A we get more exact information as to the scope of their studies, which, dealing as it does with astronomy, may belong to the Italian school: "About relative speeds, tropes, and other phenomena of the sun, moon and stars."[4] Similarly, in one of the two exceptions referred to above - for these dialogues are prior to Plato's Italian journey - Gorgias 541C: "Astronomy deals with the motion of the stars and sun and moon, and their speeds relative to one another."[4] More definite is the second exception, Cratylus 405CD: "All these move together in a kind of harmony, as the Smart say in regard to music and astronomy."

These references in the Cratylus and Gorgias may be explained, if it is accepted that Plato only became thoroughly acquainted with the doctrines of Archytas after his visit to Italy in 388, thus: at the time of writing these dialogues Plato had somehow heard about the 'musical' astronomy of Archytas, to which reference is there made and determined to make his visit in order to gain more exact information - for the references are after all couched in general terms and argue no great knowledge of the details of astronomy. Having learnt all that Archytas had to teach, Plato returned home, founded the

1. See 3 on page 174 above,. 2. See page 170 above. 3. See page 171 above. 4. Cp. Archytas, cited on page 171 above:"The speeds of stars and their risings and settings."

Academy, and included in his curriculum the geometry, harmonics and astronomy that he had learnt and which is given such prominence in these books of the Republic which deal with education. Thus, we have some details of the content of these branches of learning in the astronomy of Republic X, the Timaeus, and Laws X; in the mathematics of the Nuptial Number of Republic 546BC; and in harmonics there is the 'scale' used in the Timaeus for the composition of the World Soul. Plato, then, made his first voyage to Italy in order to learn from Archytas the arcana of the Italian philosophy, and in dialogues subsequent to this voyage there are frequent references to doctrines characteristic of this school, which are almost completely absent in earlier dialogues. As a final example of his knowledge of Pythagorean arcana, I cite Cornford's[1] interpretation of Timaeus 32B.

This reads:"It behoves it to be a solid, and solids never have one but always two means, so that God, placing Water and Air in between Fire and Earth, and giving them as far as possible the same ratio one to another, constituted and bound together the visible and tangible universe thus: as Fire is to Air, so is Air to Water, and as Air to Water so is Water to Earth." Cornford explains that in the series of 1, successively doubled, there is one mean between successive squares but two between successive cubes. Thus, in the series 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, the successive cube numbers 8 and 64 have no one geometrical mean (since there is no rational square root of their product 512, but there are two means - 8:16::16:32::32:64.[2] That this is Pythagorean is shown by Aristotle Problems XV.iii.910b37ff:"Or is it because in ten ratios 4 perfect cubes occur, from which numbers the Pythagoreans constitute the universe?" The above are the ten numbers referred to, being ratios because each stands to the other as 2:1, and the 4 cubes are 1, 8, 64 and 512. So the editor of the Loeb edition. That this was not merely Pythagorean but Italian is indicated by Diels 35A14 and 15, where Archytas sought the means between 2 given lines in order to solve the Delian problem, that is, if the lines are a and b, such that b = 2a, find x and y, such that a:x::x:y::y:b. The cube erected on x is then double that erected on a.

But to show that Plato went to Italy to learn the philosophy of the Italians, and that he revealed his knowledge thereof in dialogues written afterwards, does not prove that he was influenced thereby in deriving Ideas from the elements of Number.

1. Plato's Cosmology 47-50. 2. While there are other interpretations of the necessity for two means between solid numbers, that of Cornford seems to be the best. Milhaud, Les Philosophes Géomètres de la Grèce 325, says the solid numbers a.a.a and b.b.b require two means, a^2b and ab^2. This agrees with Cornford's example above. Miss Freeman, The Pre-Socratic Philosophers 219 et al, cites the Delian Problem, as referred to above. They do not, therefore, contradict Cornford, but overlook the particular series which Cornford thinks Plato had in mind.

ii) Plato's Acknowledgement of Pythagorean Influence.

It is the contention of this last part of our argument that by ascribing the constitution of things from elements to a Pythagorean source, as will presently be shown, is the case in the Timaeus and Philebus, Plato, in accordance with the canon determined for the choice of his protagonist above,[1] is thereby virtually acknowledging his debt to Pythagoreanism in this respect. But the issue is complicated because in the Parmenides and the Sophist, Plato seems to ascribe the point at issue to Eleatic influences, since the doctrine, or perhaps we should say the incipient idea, is put into the mouth of Parmenides and of the Eleatic Stranger respectively. Hence, it is necessary, before broaching the question of Plato's acknowledgement of Pythagorean influence, to explain this apparent inconsistency, and to do this we must draw a distinction.

The Distinction between the Provenance of the Problem and of the Provenance of the Solution. The Parmenides and the Sophist are concerned primarily with the Ideal world. The Parmenides, as has been argued, sets out from the problem how sensibles can be both one and many. It argues in effect that the explanation to this problem lies ultimately in the realm of the Ideas. If the Ideas can partake of contrary predicates without thereby forfeiting their reality, there is no reason why sensibles should not do so likewise; but any answer to the contradictions of sense is incomplete unless the problem is raised to the Ideal level. This was the weakness of the Early Theory of Ideas: it attempted to answer the problem in the case of sensibles by asserting that sensibles could partake of both of any pair of contrary Ideas. But the problem tacitly remains, how can any Idea be both one and many? This is not brought out, since 'Socrates' flatly denies the possibility, but it is shown that if the Ideas are such as 'Socrates' asserts them to be, no adequate account can be given of the manner in which sensibles are supposed to partake of Ideas, so that the conception of the Ideas requires modification. As Plato apparently sees the problem, the Ideas are incorrectly formulated, each being virtually an Eleatic monad; he sees that what is required is a new conception of the Idea as a whole having parts. The root of the trouble is the Eleatic definition of the One: it should not have been defined as without parts - hypothesis i shows that this definition leads to nihilism - but as a whole of parts, which is deduced in hypothesis ii. All this is put into the mouth of Parmenides because Plato here poses as the genuine Eleatic, as the corrector of Parmenides. Plato then hereby acknowledges his debt to Eleaticism in respect of the problem, how can sensibles be many? The Eleatics had denied the possibility of this - sensibles were unreal because both one and many - but Plato argues that their doctrine requires correction - the One itself is

1. See page 204 above.

both one and many, therefore any one sensible, any one Idea, can be both one and many. The provenance of the problem of the One and the Many is, then, Eleatic, but, while its solution - by reformulating the One as a whole of parts - is a sort of up-to-date Eleaticism, the provenance of this solution could not have been Parmenides and Zeno - for they would never have allowed that the One has parts. This, then, is the distinction that must be drawn - between the provenance of the problem of the One and the Many and that of its solution. Eleatic is the indivisible One that lies at the root of Plato's difficulties in connection with Participation and the knowability of the Ideas; to correct the formulation of the One is to carry on the Eleatic tradition of the hypothesis, If the One is; but the formulation itself of the One as a whole of parts is not Eleatic: it is something quite different - and what is the provenance of this solution, of this One as a whole of parts, is the next question.

Plato's Solution to the One and the Many is Pythagorean. The problem of the One and the Many raised in the Parmenides is referred back to in the Philebus, as we have seen.[1] Just as in the Parmenides, so in the Philebus the problem is raised from the realm of sense to that of the Ideas: it is common property that Protarchus is one and yet many as being great and small, etc.; what is meant is that the Ideas are each one and yet many, in that they are either dispersed or reduplicated among sensible things. The solution is given that the One and the Many is a "gift of the gods to men, tossed down through the agency of a Prometheus, whence the tradition is handed down that all things are sprung from one and many, and have inherent in them Limit and Unlimited".[2] The solution of the problem of the One and the Many in Ideas, to which level it must be raised if any account is to be given of its presence in sensibles, is that all things, apparently both Ideas and sensibles together (and in the following passage it is Ideas that are referred to as being each one and yet having in them a numbered many) are inherently one and many because composed of Limit and Unlimited. In the hypotheses of the Parmenides the One was shown to be also many, especially in hypothesis ii, and now this property is explained as due to the constitution of things, and so of the One, from two elements, the Limit and the Unlimited.

Now the terms, Limit and Unlimited, are characteristically Pythagorean, and in the Italian school the One, and all other things too, was composed of the Limit and the Unlimited.[3] Furthermore, it is generally agreed by the commentators[4] that here Prometheus = Pythagoras. It was he who introduced the notion and the terminology, but this is without prejudice to Plato's immediate source being someone nearer to him in time. Of this, there is no further indication in the Philebus

1. See pages 264-5 above. 2. Philebus 16C. 3. See 7 on pages 174-5 above. 4. Hackforth, Plato's Examination of Pleasure 21; Raven, Pythagoreans and Eleatics 181; Stenzel, Zahl und Gestalt 12.

bus, but his ascription of his solution of the One and the Many by means of the composition of all things from the Limit and Unlimited to the founder of Pythagoreanism indicates that in this way Plato acknowledges his debt to this school. For he is not simply reproducing a Pythagorean doctrine: the application of the One and the Many to Division in Philebus 16B-E, with the addition of the classes of the Mixed and the Cause, etc.; and to the division of reality into Limit and Unlimited in the later fourfold classification of Being, transcends Pythagoreanism and erects a Platonic construction on the Pythagorean foundation. Plato, then, in using the terminology, Limit and Unlimited, and in alluding to Pythagoras under the pseudonym, Prometheus, is acknowledging the provenance of his solution of the problem of the One and the Many.

But a clearer acknowledgement is to be found in the Timaeus, and the vague acknowledgement in the Philebus is explicable if one accepts the view, here followed, that the Timaeus was composed prior to the Philebus: for in the Timaeus Plato's debt to Pythagoreanism is explicit. Indeed, it is not difficult to show that it is above all Archytas who was his master.

While there is, it is true, no indication in the Timaeus that Ideas are composed of two elements, nor even that ALL things are so constituted, the derivation of the sensible world from elements, the 'forms and numbers' on the one hand and the Receptacle on the other, is clearly shown to have been Plato's own construction since it is deduced from the implications of the Theory of Ideas: "We must, according to my opinion, make the following distinction: there is eternal Being which has not generation, and Becoming constantly but which is never Being".[1] From the very nature of a copy, which Becoming is here assumed to be, a Place is required, since a copy must be in some place.[2] In this way the material element is derived as a development of what is implicit, or held to be implicit, in Plato's Earlier Theory of Ideas. But because in actual fact Plato had arrived at this conclusion, not by an a priori deduction from the implications of his Theory, but from quite other considerations, Plato feels bound to acknowledge its provenance by putting the whole doctrine in the mouth of Timaeus - such, at least, was the significance of the choice of Plato's chief character in his other dialogues.

In other words, if Plato's deduction of the existence of Ideas from the very nature of the Socratic definition had led him to regard himself as a follower of Socrates and so to ascribe this Theory to him in his earlier dialogues; if his deduction of the nature and the definition of the One from a consideration of the inadequacy of the Eleatic definition and deduction of the One had led him to regard himself as the true successor to Parmenides and the Eleatics, and so to ascribe this to Parmenides and to the Eleatic Stranger in the

1. Timaeus 27D. 2. Timaeus 52BC.

dialogues concerned; if these facts are so,then consistency demands that if in the Timaeus Plato's cosmology is ascribed to a Pythagorean, Timaeus of Locri, then the reason for this was that Plato regarded himself as following up the logical implications of a fundamentally Pythagorean position. It is the Philebus that shows what the fundamentally Pythagorean position was - the derivation of all things from Limit and Unlimited. From this position we have in the Timaeus the Platonic construction in respect of the sensible world - the Limit of sensibles is the Ideas, their Unlimited the Receptacle. But we can go further than this.

We agreed that Timaeus of Locri was not an historical person. This name,then, must cover Plato's acknowledged master in respect of the derivation of the sensible world from elements, of which the derivation of the Ideal world was the inevitable extension. And the identity of this person is revealed by a comparison of what is here alleged of Timaeus with what is known of Archytas - for it is he who in meant. Thus, Timaeus is described so:"Here is Timaeus, of Locri in Italy, a city which has admirable laws, and who is himself in wealth and rank the equal of any of his fellow-citizens; he has held the most important and honourable offices in his own state, and as I believe has scaled the heights of all philosophy".[1] With this, compare what is said of Archytas:"Archytas the Tarentine was at once a statesman and a philosopher."[2] "The Tarentines were at some time a powerful state, having an exceptionally democratic constitution. They received the Pythagorean philosophy, especially Archytas, who stood at the head of affairs for a long time."[3] "He was generally admired for his excellence in all fields; thus he was generalissimo of his city seven times, whereas the laws excluded all others even from a second term of office."[4] "He was head of the affairs of an Italiote confederacy, being chosen general with autocratic powers by his countrymen and the Greeks around. At the same time he taught philosophy and had many famous pupils and wrote many books."[5] The correspondence is not exact, but it is reasonably close. For even though Timaeus is said to be "the most of an astronomer amongst us, and had made the nature of the universe his special study",[6] whereas Archytas was most renowned for his mechanics, music and geometry, he was also interested in astronomy.[7] Thus, Frank[8] sees no difficulty in equating Timaeus with Archytas on the strength of the passages quoted above.

1. Timaeus 20A. 2. Diels 35A8. 3. Diels 35A4.
4. Diels 35A1,,init. 5. Diels 35A2. 6. Timaeus 27A.
7. Diels 35B1 :"They have provided us with a correct account of the speed of the heavenly bodies, their risings and settings"; and 35A3 :"Nor does it ought avail thee to have attempted the dwellings of the sky, and in thought to have sped through the vault of heaven, doomed after all to die".
8. Plato und die sogenannten Pythagoreer 129.

Summing Up. Plato, then, was led to a realisation of the inadequacy of his Earlier Ideal Theory by the incompatibility of the Idea as a One with its presence in a multiplicity of sensibles, because he regarded himself in the Eleatic tradition insofar as he posited what was known by Pure Reason as the Real, and minimised the status of sensibles. But the Ideas, conceived as Eleatic Monads, could by no means be considered able to be present in the Many, and in this case were in fact unknowable. To explain how sensibles could be at once one and many, Plato saw it was necessary to raise the problem of the One and the Many to the Ideal world. To do this he found it necessary to revise the Eleatic conception of the One, and this led of necessity to a revision of his conception both of the constitution of sensibles and that of Ideas. In drawing up his modified Theory of Ideas, Plato was influenced by the system of Archytas, defining the One as a whole of parts just as Archytas had made the One the first product of Limit and Unlimited, and just as Archytas derived all things from this Limit and Unlimited ,so Plato derived Ideas from two analogous elements (which, according to Aristotle, were in fact the elements of Number),and sensibles from these Ideas as their Limit and a material substrate, called the Unlimited in the Philebus, the Receptacle in the Timaeus, and the Great and Small in his Oral Teachings.

In this derivation of Ideas and things from the elements of Number, Aristotle says no more than that Plato 'followed' the philosophy of the Italians. But Plato was actually influenced by this philosophy and acknowledges his debt in this respect to the 'Pythagoreans', without any more particular ascription, by his use of their terms, Limit and Unlimited, in this connection in the Philebus, but by setting out his cosmology as a discourse of Timaeus of Locri, who seems to have been a pseudonym for Archytas of Tarentum, he tacitly acknowledges his debt to the philesopher of Lower Italy in particular.

Thus, so far as the dialogues and the extant external evidence touch on the relevant points at all - for in many important respects they are silent, being neither for nor against- Aristotle is on the whole corroborated in his account of the relationship between Platonism and the philosophy of the Italians in Metaphysics A.vi and in other passages discussed, so that it is reasonable to accept his uncorroborated details also at face value, since in these respects there is no evidence to the contrary. It remains, then, to make a synthesis of the evidence of Aristotle, the dialogues, and evidence independent of both, in order to explain the significance of what Aristotle says in Metaphysics A.vi.1.

Conclusion.

1. Pythagoreanism. a) The Evidence. It is perhaps overoptimistic to hope to reach any finality in respect of Pythagoreanism, since there was only an oral tradition down to the end of the fifth century B.C. and the source of all later accounts, Aristotle's work on this subject, has been lost except for a few fragments. And the notices which Aristotle has left us are seldom assigned to the various schools which held variant views, and so are subject to the suspicion firstly that he mixed up these various views indiscriminately, and secondly that he felt no scruples about interpreting their various doctrines in such a way that they would lend support to his own theories, quite apart from the possibility that he might have misunderstood or have been ill-informed about certain particulars. I have, however, attempted to find sure ground firstly by making a more thorough analysis of Aristotle's evidence than modern commentators have usually done, and secondly by subjecting the conclusions derived from this examination to a check from an investigation of independent sources. This more thorough analysis of Aristotle consists in demonstrating that, except for the 'others of the same school' of 986a22-30, it is the same school of Pythagoreanism, the Italian philosophy, that is referred to throughout the whole of Metaphysics A. It is next demonstrated that this book, together with certain other references ascribed to this school, gives an account of a philosophy which forms one consistent whole, whereas most of the other references not so demarcated give an account of a Pythagoreanism essentially different from this Italian school. The investigation of the evidence independent of Aristotle centres around the deduction of the tenets of Pythagoreanism criticised by Parmenides and Zeno, and of the sort of changes that would have been made in order to obviate these criticisms. To this can be added a deduction of the sort of tenets which early Pythagoreanism might have held in view of the beliefs taught by Anaximander and Anaximenes, who immediately preceded Pythagoras, the tradition of a split in Pythagoreanism, and certain fragments and accounts given of named Pythagoreans at the end of the fifth century. As the conclusions drawn from this independent evidence largely corroborate Aristotle, it is reasonable to accept the whole of his evidence about Pythagoreanism at face value, arguing that if he is correct where he can be checked, he must also be correct where the independent evidence is silent - for in no instance does the independent evidence contradict his statements. On this basis, then, I give the following account of Pythagoreanism from its beginnings down to the end of the fifth century B.C.

b) The Early Pythagoreanism. Confining the account to the 'scientific' side of this philosophy, it would seem that Pythagoras and his immediate followers held an animistic view of Nature. The

One came into being as a Seed. Outside of this was the Void, which was confused with Air. The One breathed in this Air-Void and by reduplicating itself or perhaps by being divided up, it received the Void into its interstices, limiting it, each unit being separated from the others by this Void. The units were called the Limit, and the Void the Unlimited. Sensible things, then, were composed of units having magnitude delimiting a Void. But these units were numerical units, since Number was similarly constituted as points set out in a background, geometrically figured as square or oblong numbers, etc. Things were thus Numbers. Finally, various members of sets of contrary pairs were analogically identified with the primary pair, Limit and Unlimited, e.g. the One and the Good were both instances of the Limit, Many and Evil were ranged under the Unlimited. To this philosophy belong, in Aristotle, the references Metaphysics 986a22-30, 1080b16-21 and 31-34, 1091a15-18, Physics 213b23-28 and De Caelo 300a14-19.

Parmenides criticised this philosophy in that no adequate account was given of how the One, as Seed, came into being; he criticised the derivation of the Limit and the Unlimited, the latter in that what is other than the One should be nothing at all according to the Principle of Contradiction, the former because, again according to his definition of the One, the One could neither be divided into units nor become many; and he touched on the discreteness of things resulting from their constitution as units set out in Void, and certain other points shared by the Pythagoreans with other philosophies, such as the impossibility, according to Parmenides, of generation and destruction.

The Pythagoreans countered by ridiculing Parmenides' own One. As finite, they said, it must have a limit and so becomes two instead of one; it must have beginning, middle and end and so becomes three; and if corporeal, it must have parts and so be many instead of one.

Zeno took up the cudgel in defence of his master, and showed that the doctrines of Pythagoreanism led to contradictions, by taking as his premisses the implications of the Pythagorean Limit and of their Unlimited alternately. Thus, as made up of a number of points or units, the Many was finite in number, but as infinitely divisible, in that the Void is a continuum, the Many was infinite in number; a body is infinitely divisible since it is set out in a continuum, but as it is made up of points, if these points are arithmetical units the body can have no magnitude at all, and if the points have any magnitude at all the body will be infinitely large.

c) The Later Pythagoreanism. i) The Students or Theologians. On its religious side, Pythagoreanism lived on, and despite the Eleatic criticism its exponents retained the original doctrines, except that they seem to have placed the Good later in the scheme

of 'evolution', instead of making it primary. Perhaps they felt that the other doctrines could not be altered without losing much of the religious appeal of the philosophy. However that may be, Philolaus, if his fragments are spurious, as is generally believed, was the chief representative of this wing at the end of the fifth century B.C., and they are referred to by Aristotle as 'the Theologians' in Metaphysics 1091a34-b3, and he seems to mean this school in Metaphysics 1072b31-35, 1075a36-37, 1083b8-19, and 1090a21-35. It was this school that Speusippus is said to have followed, and most of its adherents seem to have fled from Italy to Greece as the result of civic disturbances in their homeland, bringing with them the belief in the Transmigration of Souls.

ii) The Auditors, Italian Philosophers or 'So-called Pythagoreans! Tradition distinguishes from the above-mentioned genuine followers of Pythagoras a sort of 'heretical' school, if one may use the term, who abandoned the religious teachings of the Master and modified his doctrines in order to obviate the criticisms of Parmenides and Zeno. Apparently the founder of this school was Hippasus, and among other famous names we distinguish Eurytus, Archytas, and perhaps the fragments of Philolaus - assuming that the tenets which they embody were held by someone, whether by Philolaus or not. It is this 'scientific' wing of Pythagoreanism, which centred largely around Tarentum and perhaps Croton and Metapontium, which is referred to by Aristotle in Metaphysics book A and certain other places detailed on page 32 above, and this is the school Plato followed.

To meet Parmenides' objection that, if Being is one, there can be nothing else - no Unlimited because the other than the One IS NOT; no Limit because the One cannot be many - they posited two elements as primary, the Limit and the Unlimited, and derived the One from them as their first product. This enabled them to explain all other things as compounds of Limit and Unlimited. This also met Zeno's criticisms, because the Limit was no longer an aggregate of arithmetical units, except in the case of Number itself, and numbers have no magnitude. To avoid making things discrete, they conceived things as composed of Extension bounded by various limits: Number was bounded by units, Lines by points, Planes by lines, and Solids by planes: thus, in the case of the minimal figures, the Line was bounded by 2 points, the Plane by 3 (triangle), and the Solid by 4 points (tetrahedron), and the simplest cosmic bodies were composed of the regular geometrical figures, Tetrahedron, Cube, etc. This required a modification in the leading Pythagorean doctrine that things were Numbers;now things had the same elements as Numbers - the Limit and the Unlimited, but of course the Limit was in fact different in the case of Numbers and of things, just as it differed in the case of Lines and of Planes, as stated above. But the identity, if we may call it that, of the Limit of things - bounds such as points,

lines, surfaces/ - with that of Numbers (units) was established by an argument from analogy. Number was set out as rows of units in the form of 'isosceles' and 'scalene' numbers, as explained above on pages 44 and 301. Since even numbers consisted of two equal rows, this was taken to symbolise the Unlimited; since odd numbers had the equality of these lines limited by the odd unit left over, this symbolised the Limit. But I think the identity of Limit and Unlimited with Odd and Even was established rather by means of their method of definition. According to this, they thought that a thing was to be defined in terms of the first occurrence in nature of its characteristic attribute, and in determining what was first, they gave precedence to Numbers. So Justice was reciprocity or the equally equal, and the first example of this was the number 4, which consists of two 2's. Thus Justice was 4. In this way, the Odd which exhibited in the realm of Number the attribute of limitation was the essence, so to speak, of the Limit, and the Unlimited was the Even since this displayed its characteristic attribute of divisibility. However that may be, the elements of Number, the Odd and Even, were by analogy or by definition the same as the Limit and the Unlimited which were the elements of all other things. Thus the elements of things were those of Number.

Further, these philosophers were devoted to mathematics, and in Harmonics worked out the harmonic concordances and the connection between the length of a string and its rate of vibration, which because the notes depended on the length of the string, thus determined its musical tone. In astronomy they held that the earth, the counter-earth, and 8 other heavenly bodies circled about a Central Fire, 10 bodies in all. And harmonics was connected with astronomy by identifying the distances of the heavenly bodies from the centre of the universe and their speed of revolution with the length and rate of vibration of a musical string, so that in a way the heavens were a musical scale. This is the doctrine of the Harmony of the Spheres, if one may use the term, since the use of spheres to explain the movements of the stars actually belonged to a later day.

From this 'philosophy of the Italians', then, let us pass to Platonism.

2. Platonism. a) The Evidence. In the case of Platonism there are three sets of evidence, each presenting its own difficulties. Aristotle, as in the case of Pythagoreanism, does not always make it clear whether he refers to Plato's Earlier Theory of Ideas or to his later Idea-Numbers, or indeed to some Academic interpretation, not necessarily held by Plato himself. Again, he shows a tendency to couch Plato's thought in his own terminology and to draw deductions from the implications which these terms would have had in his own system. In line with this, when he is uncertain as to Plato's meaning, he sometimes tries to reach a decision by interpreting Plato's

notions in terms of his own conclusions in that respect. And there is the further possibility that he may have misunderstood, have been misinformed, or may even have misrepresented Plato's thought. Most of the former difficulties arising from Aristotle's evidence can be largely overcome by making due allowance for these weaknesses, which are not peculiar to Aristotle, especially since Aristotle's own terminology is well known to us. In any case, in treating the broad lines of Platonism, which is the subject of this work, these weaknesses do not materially affect the present investigation, since cases of dispute are mostly points of detail. As for the latter, we have sought to obviate the difficulty by checking Aristotle's information in the relevant respects against Plato's own words and the body of independent evidence to be mentioned presently.

While we have apparently the whole body of Plato's works, the dialogues, offer in certain respects greater difficulties as evidence for Platonism than Aristotle's account itself. They give us no complete, no systematic account of his philosophy, but are primarily dramatic works of art. For this reason there is a presupposition that the views expounded by the various characters, especially those of the protagonist (to use the technical term of the drama concerning what are actually works of art), represent not Plato's views but those of the character portrayed, especially when such character is an historical personage. An examination, however, of the earlier dialogues leads to the conclusion that, while in its broader lines, the thought put into the mouth of the protagonist, Socrates, is in character, it shows an ever increasing tendency to incorporate and finally to pass into Plato's own thought. Plato makes use of certain artistic devices to mark where Socrates' utterances go beyond what Socrates actually would have said, and this leads to the canon that in general, that is in later dialogues also where some character other than Socrates is the chief speaker, Plato chose his protagonist as a form of acknowledgement that the doctrines there expounded owed a special debt to their dramatic exponent. Nevertheless the difficulty still remains that such doctrines underwent, or might have undergone, an undetermined measure of reconstruction in order to suit the requirements of the dramatic date and the historical characterisation of the protagonist. Further, the dialogues were occasional pieces, each being written to make some particular point, and where Plato's own doctrines are introduced, only so much of them appears as is relevant to that point. This raises great difficulties of interpretation as to detail, but as in the case of Aristotle's evidence this does not make our task as formidable as otherwise would be the case, since we are concerned for the most part only with the general philosophical position underlying the dialogues. Our great difficulty is not so much the interpretation of the significance of any particular dramatic utterance for Platonism as the silence of

the dialogues, the lacunae in the evidence, consequent upon the occasional nature of these works. For most of the Platonism in the dialogues occurs in digressions. This is especially the case in respect of the Doctrine of Idea-Numbers, and it is for this reason that certain evidence independent of both Aristotle and the dialogues is so valuable.

Most of this evidence is drawn from notes on Plato's Lecture on the Good made by his hearers, especially Aristotle, and it is a natural supposition that these notes were merely transcriptions of what Plato actually said. Especially valuable is the account of Hermodorus, since there can be no suspicion that he was influenced by any deliberate misrepresentation of Platonism on Aristotle's part,[1] as he was not a Peripatetic. His account of the Lecture is confirmed by the agreement therewith of accounts given by Sextus Empiricus and Alexander of Aphrodisias. In the second place it is reasonable to accept accounts drawn from Aristotle's notes on the Lecture, as said above, (which unfortunately do not amount to much, as these notes did not remain extant until the time of most of the extant commentaries; they may, however, lie behind the evidence of Theophrastus, Aristotle's pupil). But even in the case of this evidence there are difficulties of interpretation, since it consists of fragments isolated from their context, i.e. from their original context, and their relation to the doctrines which we may suppose Plato to have expounded in his Lecture is not always clear, and a comparison of three reports of the same doctrine, those referred to above, clearly shows that such reports were made with varying degrees of detail.

However, a comparison of all three bodies of evidence, making due allowance for their respective difficulties in interpretation, leads to a reasonable agreement between Aristotle's evidence on the one side, and that of the dialogues and accounts of the Lecture on the Good on the other. Where the evidence in question covers any point made by Aristotle, he seems to have rendered a fair account of that point, if, as said above, we make due allowance for his weakness of interpreting other philosophies in terms of his own, and the conclusion seems warranted that, where his evidence cannot be corroborated because it is not mentioned in the dialogues nor by the extant accounts of the Lecture on the Good, it is to be accepted since it is nowhere contradicted and is compatible with what has already been checked. On this basis I give a reconstruction drawn from these various sources, but confined largely to those points of agreement with and difference from Pythagoreanism listed in Metaphysics A.vi - for only such points are really relevant.

1. This question is more fully discussed in the Appendix.

b) Plato's Earlier Theory of Ideas. Despite Burnet and Taylor, it is now generally agreed that Plato was the first who asserted the existence of Ideas. In arriving at this conclusion, Plato was influenced from two directions: Heraclitean Flux for the sensible world, and Socratic definitions as the objects of knowledge. Since objects of knowledge could not be in a sensible world that was always changing, for that which is constantly changing cannot be known, Plato separated the universal from its sensible particulars and called them Ideas or Forms. These were what we would call intelligible entities, and there seems to be no doubt that they were really separate from sensibles, at any rate in the later dialogues of this period. Sensibles were named after these Ideas and existed by participation in them. This word, μέθεξις, was adopted from the current term for denoting the relation between qualities and their substrate. Plato seems to have been not quite clear in his own mind as to the nature of the manner in which sensibles participate in the Ideas, but tends to pass, in the course of time, from more commonly conceiving the sensibles 'to share' in Ideas to more commonly regarding sensibles as copies of Ideas. One of several classes of Ideas were Ideas of Number. These imply the existence of Mathematicals as something between the Idea and the sensible embodiment thereof to serve as the objects of mathematical thought, but there is no clear evidence that Plato held such entities in his earlier period: perhaps he had not yet worked out completely the implications of his thought.

c) The Change in Platonism. The problem that seems to have especially engrossed Plato's attention was that of the One and the Many. This had two phases: in the world of sense and in that of the Ideas. The Eleatic view was currently accepted that the One was indivisible, had no parts, and that what was not Being had no existence at all. Thus, if any one thing appeared to be many, its appearance of multiplicity must be false. This meant that the world of sense, which in general was characterised by multiplicity and which in particular had been shown by Zeno to combine contrary attributes, was unreal. Plato seems to have attempted to give an explanation of the contradictions of sense in terms of its participation in Ideas of opposite meaning, but this raised the fundamental question of the mode of Participation. If this was a presence of the Ideas in its particular instances, how could the Idea, as a unity, be either sub-divided or reduplicated? If this was a copying, of the Ideas by sensibles, there must be a substrate, a tertium quid, in which these copies could be copied. But then the problem arose in what relation the copy which entered into that substrate stood to the original pattern. On the other hand, Plato had worked out a method of Division, and if this had an ontological ground the Ideas must have been capable of intercommunion, by which each

would be at once both one and many. Judging from Philebus 15AB, Plato put these two phases of the problem of the One and the Many together, and asked how Ideas, as each unities, could still be many: many as the ontological basis of Division - for example, Animal is both Man and Horse - and many as split up or perhaps reduplicated in the world of sense, whether sensibles shared in the Ideas or whether copies of the Ideas, as emanations so to speak, were present in some substrate, whence the sensible came into existence.[1] The problem of the One and the Many in the world of sense required for its explanation a solution in the world of Ideas. And Plato saw that the root of the problem was the Eleatic definition of the One as having no parts and of the other than the One (or of Being in general) as absolutely non-existent. For the solution of the problem, Plato had to refute and reformulate the conceptions of the One and of Not-Being. He saw that the One was really a whole having parts and that Not-Being was only what was different from Being.

This problem, in its phase of the multiplicity of sensibles, Plato set out in the Parmenides, casting Socrates in the rôle of the upholder of his (Plato's) Earlier Theory of Ideas, and Parmenides (for the root of the problem was Parmenides' definition of the One and of Not-Being) in the rôle of Plato's own maturer judgment. Setting out from Zeno's refutation of the world of sense, the dialogue gave Plato's earlier answer: sensibles can participate in either or both of two contrary Ideas, and so combine contrary predicates. Parmenides, however, shows that this will not do - no adequate account can be given of this Participation. He then undertakes in effect to put Socrates on the right path. He then proceeds to demonstrate the incorrect deduction made in the poem, the Way of Truth, both in respect of the One and of Not-Being, and complements the refutation by setting out a correct deduction of the One and of Not-Being (in hypotheses ii and v), in the course of which it appears that the fundamental error of the poem was the definition of these concepts: the One is really a whole of parts, Not-Being the other than Being. The nature of this Not-Being is further described in hypothesis vii as an indeterminate continuum. The presumption is, and this is confirmed by Aristotle, that sensibles are composed of Being and this Not-Being of hypothesis vii. The problem is solved of the One and Many of sensibles in the Appendix to hypothesis ii, where it is argued that a sensible can partake of contrary attributes in temporal succession.

1. This is not the 'orthodox' view, but seems to be consistent with the former part of the following quote from Ross, Plato's Theory of Ideas 30:-

Ideas	imperfectly imitated by		Qualities
exemplified in	〃	〃	exemplified in
Numbers and Shapes			sensible things.

These 'Qualities' seem to be what Plotinus calls ἔνυλα εἴδη. So I interpret the εἰσιόντα of the Timaeus as copies of the Ideas which are embodied in sensibles.

The Parmenides, then, testifies to a crisis in Plato's thought. Plato found that his Ideal Theory was unable to give a satisfactory account of the multiplicity of sensibles, much less that of the Ideas themselves - for if Division had an ontological basis, the Ideas had to communicate, and so be at once both one and many. He saw that the root of the problem of the One and the Many lay in the Eleatic definitions of the One and of Not-Being, and reformulated them, incidentally following up his demonstration that Not-Being in some way IS in the Sophist. In the Sophist the ground of the Not-Being demonstrated in hypothesis v is found in the Other, and while Plato is not explicit, it seems that just as he found the solution of the One and the Many in the sensible world by deriving it from Being and Not-Being, so its solution in the Ideal world is to be found in its derivation from some representative of Being and this Other, the ground of relative Not-Being. But for his particular interpretation of these elements, we must turn to the next point.

d) The Question of Pythagorean Influence.

As the subject of this thesis is concerned only with that relationship between Platonism and Pythagoreanism referred to by Aristotle in Metaphysics A.vi.1, the question of Pythagorean influence, so far as we are concerned, is confined to the relationship between the philosophy of the Italians, that of the Auditors, and that phase of Platonism that centres around the derivation of Ideas and of things from elements, which is still to be discussed. Some time before plato wrote the Parmenides, which has been discussed above, he made a journey to Italy and Sicily, 388 B.C., and according to Cicero's evidence, this was in order to learn from Archytas of Tarentum the details of his philosophy. Of this philosophy Plato had already some general knowledge, judging from allusions thereto in the Cratylus and Gorgias, and in dialogues written after this voyage he shows some detailed knowledge of the Italian philosophy. When he came to the decision to modify his Theory of Ideas, this knowledge was applied in a particularly apposite fashion.

For the Early Pythagoreanism had been criticised by Parmenides, inter alia, for its derivation of the Limit by the reduplication of the One, Parmenides arguing that what is one is nothing but one and so cannot be many, as it would become if reduplicated, or it may be if divided, for our evidence does not allow us to determine exactly in what way the Limit arose from the One, by multiplication or by division. Now this was, in a way, precisely Plato's own difficulty at the time of the crisis in his thought. He could not give a precise account how the Idea could be pluralised in its sensible particulars, whether this was by multiplication or by division, for this very reason, that the One, by definition, could not be nor become many. But the post-Zenonic Pythagorean school had found a

way to obviate Parmenides' criticism, namely, by deriving the One from the Limit and Unlimited, so that the elements were now primary instead of being derived from the One, and the One, instead of being an original unity, was in its very nature a compound of these two elements. Further, after the fashion of the One itself, all other things were likewise derived from these same two elements. Plato apparently saw here the solution to his own problem just as the Pythagoreans had earlier been confronted by his own problem, and, allowing for the differences between his and the Pythagorean philosophies, he solved his problem by applying the Pythagorean (Italian) solution to the set up of his own rather different system, if it can be named that.

Taking the One as analogous to his Idea, and seeing that this Idea could not be pluralised in sensible particulars any more than the Pythagorean One could have been pluralised into the units making up the Limit, IF IT COULD BE REGARDED AS AN ELEATIC MONAD, he followed the lead of the post-Zenonic philosophers by making the Eleatic definition of the One, namely as having no parts, inapplicable to his own One, the Idea, by deriving it from two elements analogous to the Limit and the Unlimited, and likewise derived all other things, i.e. sensible particulars, from these same two elements, the Limit and the Unlimited, after the fashion of the Idea. Then, if the Unlimited as the element of sensibles was a principle of multiplicity, and the Unlimited as the element of Ideas was a principle of otherness or differentiation, not only was the problem solved of how an Idea, as a One, could yet be many both in itself and in the infinite multiplicity of its particulars, but his principles, the Limit and the Unlimited, were used to effect the limited multiplicity of of the Ideas in themselves and their infinite plurality in the world of sense into which they were either divided up or reduplicated - this problem Plato seems never to have solved. Thus, in the Philebus it is asked how an Idea, being a One, can yet be many in its sensible particulars, and this is answered as inherent in the constitution of all things from the Limit and the Unlimited; further, the distinction is made between the numbered many into which an Idea, sc. a Genus, is divided, namely its Species, and the infinite many of its sensible particulars, and by making use of just these terms, Limit and Unlimited, which is ascribed to a Prometheus, (which is generally accepted as a pseudonym for Pythagoras) Plato in this way acknowledges his debt to Pythagoreanism. Further, in the Timaeus where Plato deals with the constitution of the sensible world from elements, but where he uses the term 'Receptacle' instead of 'Unlimited', Plato further acknowledges the influences of the Italian school by putting the whole discourse into the mouth of a Pythagorean, Timaeus of Locri, who is described in such a way that he can be recognised as Archytas of Tarentum. It remains to give a more detailed account of the Theory

of Ideas.

e) The Later Doctrine of Idea-Numbers. Plato's ultimate principles were the One and the Great and Small. The latter term was a generic one, embracing various 'species' or types analogously constituted, such as the Long and Short, the Broad and Narrow, the Deep and Shallow, the Hot and Cold, etc. From each of these a different class of entity was constituted. Thus, from a principle possibly called the Many and Few, although it is generally referred to as the Unequal, were derived Ideas of Number. This principle was probably a temporal continuum and gave rise to the Numbers by being 'equalised', i.e. marked off at equal intervals. This 'equalisation' was effected in some way not known to us by the One. From the Long and Short, doubtless a one-dimensional continuum, was derived the Idea of the Line, although van der Wielen and others have argued that the Ideal Magnitudes were not really Ideas at all, but a 'fourth class'. So from the Broad and Narrow, a two-dimensional continuum, was derived the Ideas of various Planes, and from the Deep and Shallow, a three-dimensional continuum, came the Ideas of Solids. If these classes of entities were not Ideas but a 'fourth class' - Ideal Magnitudes - then their formal principle would be not the One, but the Two, Three and Four respectively. Such a view was held by somebody, and most commentators believe it was Plato, partly on the strength of some notices by Aristotle, but more definitely from an allusion made by Theophrastus. With this I agree, but without prejudice to the acceptance of the term 'fourth class' as due to Aristotle's critical method. That is, Aristotle calls it such, but Plato may or may not have interpreted these Magnitudes as Ideas. However that may be, other Ideas, such as those of the Natural Kinds, would doubtless have been derived from some sort of substrate embracing various qualitative continua, and from the One. Of this, however, we have no evidence except perhaps in the Sophist where some of these Kinds are discussed. From this it would seem that the most fundamental of these continua, doubtless because common to all Ideas, were Being and Not-Being, which accounted for the existence of the Ideas, and Same and Other, which accounted for the self-identity of each Idea and for the differentiation of the Ideas respectively. All the various sets of continua were subsumed under one all-embracing, or perhaps typical, continuum, the Great and Small, though in what sense this could be called all-embracing rather than the More and Less, or in what sense it is particularly typical, is not at all clear. In the case of all the Ideas, of true Ideas as distinct from the 'fourth class', the other elements, corresponding to the Pythagorean Limit, just as the Great and Small corresponded to the Unlimited, was the One, possibly to account for the unity which characterises the universal as against the plurality of sensible particulars.

Now the fundamental tenet of Early Pythagoreanism was that all things were Numbers, and as the Italians altered this to the elements of all things being the elements of Number, and substantiated this by their method of defining the essence of anything in terms of its first occurrence, that is of its occurrence in the realm of Number, (the Limit being in this way equated with the Odd and the Unlimited with the Even), Plato, who was influenced by this school, derived Numbers from two analogous elements. As among the Greeks, not having the zero, Number was universally conceived as having its origin from the One, Plato found his formal element (to use the Aristotelian term) in the One, and to account for their serial order, while at the same time keeping close to the Pythagorean Essence of the Even - the Two - he made their material element an indeterminate dyad, under which the Great and Small itself was apparently ultimately subsumed. For Plato could not, like the Pythagoreams, derive his Ideal Numbers from the Odd and Even since this would have given mathematical and not Ideal Numbers. Thus, Ideas, being composed of the same elements as Numbers - the One and the indeterminate dyad of Great and Small - were Numbers in respect of their origin. But little of this appears in the dialogues.

As Plato's Ideas were separate from sensibles, whereas the Numbers of Archytas were phenomenal numbers, it was necessary for him to make use of two Unlimiteds, one for Ideas, discussed above, and another for sensibles. But just as the various types of the Unlimited in the case of the different types of Ideas were all analogically the same as the generic term, Great and Small, so his sensible substrate was but another variety of this. Such were the Hot and Cold, the Wet and Dry, etc. - sets of qualitative continua. As the Parmenides is the first dialogue in which elements of the sensible world are hinted at and it is confined in its terminology to the nomenclature forced upon it by its mise en scène, it is difficult to decide whether quantitative continua such as the One and the Many, the Great and the Small, which are implied by hypothesis vii, also were constituents of the sensible substrate. However that may be, it is described in the Philebus as the hotter and drier etc., and named the Unlimited; described in the Timaeus as Space moistened and enflamed, and named the Receptacle, where it is also the source of motion and irregularity in the sensible world; and it is further described by Aristotle as a principle of multiplicity, pluralising the Ideas which it receives, so that from one application of the Idea of Table, for example, the substrate yields a plurality of tables. But Aristotle's other illustrations drawn from the dialogue, the simile of gold and the metaphor of Mother or Nurse, do not seem to be particularly apposite to the point he is making - the pluralising property of the substrate. The principle of unity in the sensible is the Idea, or rather the Idea as multiplied or perhaps

divided in the world of sense, and it is Soul that puts this 'image' of the Idea into the substrate to effect the sensible particular, the first such act on a cosmic scale being described by Plato in the Timaeus as Creation, a bringing of order into disorder.

Such is the reconstruction suggested by the evidence. It is highly tentative and incomplete because our evidence is fragmentary or deals only with particular points. It seems impossible at this late stage of time to discover how all this worked out, perhaps indeed Plato did not succeed in bringing all the various strands of his beliefs into one all-embracing system. Perhaps that is what he meant when in Epistle vii.341C he wrote:"There does not exist nor will there ever exist any treatise of mine dealing therewith. For it does not at all admit of verbal expression like other studies, but, as a result of continued application to the subject itself and communion therewith, it is brought to birth in the soul on a sudden, as light that is kindled by a leaping spark."

.....ooOoo.....

Appendix.

In addition to the positive account of the interpretation of Metaphysics A.vi.1 given in this dissertation, it seems to me to be advisable to append here a negative side to complete the argument, namely, to refute Cherniss' rather formidable arguments that Aristotle, because he could not understand how Ideas could exist unless they were Numbers, assumed that they were such, and put together the details of his interpretation from isolated passages in the dialogues, which he interpreted incorrectly in any case, and that, in order to bolster up his fiction of Idea-Numbers, he invented for it an alleged Pythagorean influence, rewriting the transition from his account of Pythagoreanism in A.v to his account of Platonism in A.vi for this purpose, and, under the influence of this alleged connection between Pythagoreanism and Platonism, he further invented the necessary details of Pythagoreanism required in order to establish such connection. We shall recount Cherniss' arguments on these points in detail, followed by a refutation, but preliminary thereto it will be advisable to deal with the question of the order of composition of books A, M, and N, since Cherniss' interpretation depends to a large extent on his conception of their order, and the refutation likewise requires the correct order to be established.

1. The Order of Books A, M and N. Cherniss' View. Cherniss[1] takes the back-reference[2] to the influence of Socrates in M.ix.1086 a29-b11 to refer to the mention of Socrates in M.iv.4 1078b9-36, because Socrates is there dealt with fairly fully, whereas in A.vi. 987a32-b10, the only other passage which could be referred to, Socrates is reduced to a minimum. Indeed, A.vi is later than either of the other two passages, because it gives added information in connection with Flux, viz. that Cratylus was Plato's teacher, and in connection with Pythagoreanism, but it reduces the account of Socrates to a minimum, and does not mention at all the duplication of reality by the Forms, which characterises the other two passages. Hence, he argues, A.vi was a last recension of the description of Platonism given first in M.iv and for a second time in M.ix, with the purpose of reducing the influence of Socrates to a minimum and replacing it by that of Pythagoreanism, in order to bolster up Aristotle's fiction of a Platonic Theory of Idea-Numbers. The order of these passages, then, is M.iv, M.ix, A.vi.

A Refutation of Cherniss' Arguments. The argument that A.vi must be later than the other passages because it reduces the picture

1. Aristotle's Criticism of Plato 189-198.
2. The possibility is disregarded that an editor of the Metaphysics might have inserted this reference after the work had been put together in the form in which it now exists, which was certainly not its original form. Compare Ross, Aristotle's Metaphysics I. xiii: "The Metaphysics was produced by combining separate treatises" and op. cit. xxxii: "It may have been edited by Eudemus".

of Socrates to a minimum and elaborates the account of Pythagoreanism, is purely subjective. For why should the argument not be turned about and used to show that, e.g. M.iv is later than A.vi because it puts the account of Pythagoreanism in parenthesis and elaborates the influence of Socrates?

It is no proof that A.vi is later than the other two passages because it omits the argument that Ideas duplicate reality and adds the point that Cratylus was Plato's teacher. Cherniss cannot have it both ways. Why not argue that M.iv is later than A.vi because it omits the point about Cratylus and adds an argument that Ideas duplicate reality? In other words, Cherniss is not clear which is the characteristic of lateness: the omission of certain points or their addition. When he takes both characteristics together as the mark of lateness he is using a purely subjective criterion, since there is no reason why the addition of 'a' and the omission of 'b' should be preferred to the addition of 'b' and the omission of 'a'.

The question of the back-reference is more involved. If it was added by the editor, who placed the separate books in the present order not because they were composed in that order but because he thought that order best represented Aristotle's development of his subject, then clearly the passage to which the reference refers is not necessarily either late or early. But let us meet Cherniss on his own ground and assume that the reference was Aristotle's own. At first sight his argument seems to be cogent that the reference must be to M.iv and not to A.vi because the account of Socrates in M.iv is fuller than in A.vi, and therefore M.iv is earlier than M. ix. Since then the account of Socrates is fullest in M.iv, which is early, and less full in M.ix, which is later, analogy proves that A.vi, in which the account of Socrates is reduced to a minimum must be latest of all. But this really misses the point, The back-reference reads:"And Socrates gave the impulse to this theory, as we said in our earlier discussion, by reason of his definitions." Hence, what it refers to is not a full and detailed discussion of Socrates, but to an account which mentions that SOCRATES GAVE THE IMPULSE TO THIS THEORY. Now M.iv does not at all state this, and its implication that his definitions influenced the Ideal Theory is rather vague:"Socrates became the first to raise the problem of universal definition...but Socrates did not make the universals or the definitions exist apart; they, however, gave them separate existence, and this was the kind of thing they called Ideas." I maintain a clearer statement of the point is given by A.vi:"Socrates fixed thought for the first time on definitions; Plato accepted his teaching, but held that the problem applied not to sensible things but to entities of another kind....(which) he called Ideas." Admittedly one could not be certain to which of these two passages M.ix refers if one considered only the words quoted. But I add the following argument to

clinch the matter. After the back-reference cited, M.ix continues: "But he did not separate universals from individuals." Now since this comes after the back-reference, it would seem that the passage referred to did not include the statement that Socrates did not separate. This is in fact not included in A.vi, but it is included in M.iv. Therefore, A.vi seems to suit the requirements of the passage referred to in M.ix[1] better than does M.iv. Therefore, A.vi is early and M.ix a little later, with presumably M.ix (iv?) the latest.

We conclude, therefore, that Cherniss' arguments for the lateness of A.vi are not conclusive, but could be used with equal effect to argue the lateness of M.iv.

Jaeger's 'we-they' Argument. Jaeger[2] assigns book A to that period of Aristotle's life when he was at Assos shortly after Plato's death and still regarded himself as a Platonist, as is witnessed by references in A to the Theory of Ideas as "WE" hold it. M.ix.1086a21-N.fin. also belongs to the same period, since it reveals the same attitude in 1086b18-9:"We shall destroy substance in the sense in which WE understand 'substance'". In fact, it formed with A, and a form of B Γ E reflected in the student's notes which constitute part of K, an early version of the Metaphysics, which was later revised by Aristotle, and in which, inter alia, M.1086a21-N.fin. was meant to be replaced by M.init.-1086a21. This latter is shown to be later because it systematically removes the "we" from those criticisms of the Ideas in A.ix which are repeated in M.iv,, replacing the "we" by "they". Thus, at this time, Aristotle was no longer a Platonist, and the book can be assigned to the period when the Peripatetic school was hostile to the Academy, which must have been after Aristotle's return to Athens in 335. Therefore, the occurrence of "we" in books A and M.ix.1086a21-N.fin., its absence in M.init.-1086a21, and the systematic replacement of "we" by "they" in the latter, indicates that the latter was written more than 10 years after book A, so that Cherniss' arguments for the later date of A.vi would seem to collapse. The more so since Ross,[3] while differing in many details from Jaeger's reconstruction of the stages in the compilation of the Metaphysics, agrees in this, which is the only part that directly concerns our argument, that A is obviously the first part of a course of lectures, and is early because of its "we" passages; book M is later because it replaces the "we" by "they", was meant to replace the criticism of Platonism in A.ix.,and was particularly concerned with Speusippus and Xenocrates in contradistinction to A which is concerned with Plato.

Cherniss[4] however has rather dashed this argument, at least insofar as it concerns his own thesis that A.vi is later than M.,

1. Jaeger, Aristotle 189 note 1, takes 1086b2 to refer to 987b1.
2. Aristotle 171 with note 3, 178-189, etc.
3. Aristotle's Metaphysics I.xv and xxii.
4. Aristotle's Criticism of Plato 489-493.

by pointing out that the "we" does not always mean that Aristotle is speaking as a Platonist but that he is agreeing with what Plato said; that in any case "we" is confined in book A to A.ix - indeed, A.vi 988a2-3 has "they" - and both "we" and "they" occur in the same connection in A.ix and B. Thus, the "we" is not evidence of early composition, but only shows that in the particular passage in which it occurs, Aristotle there drew on earlier writings, not necessarily his own. I must allow that Cherniss has here made his point, and some other criterion must be sought to demonstrate that M.iv is later than A.vi - for this is the crux of the matter.

A Demonstration that A.vi is ~~later~~ Earlier than M.iv. The criterion which I here adopt is that, where two passages are obviously related, one as a recension of the other, that one is the later in which any sentence can be shown to be out of place in the context. Such passages are the first parts of A.vi and M.iv, where descriptions are given of Plato's Earlier Theory of Ideas. This account in A.vi falls into three parts: i) the influence of Cratylus, ii) the influence of Socrates, and iii) Plato's argument by which he arrived at the conception of Ideas. M.iv reflects these three divisions, and with the exception of a long parenthesis on the history of the definition, which is not strictly necessary, there is no detail in M.iv which is not found in A.vi, with one exception: that Socrates did not make the universals exist apart, but the Idealists separated them.[1] Then follows a series of criticisms that are almost word for word identical with the first four criticisms of A.ix.

Now, dividing these passages into the said three parts, we find that A.vi reads as follows, the capitalised sentence being the crux: i) Plato became familiar with the Heraclitean doctrine that all sensible things are ever in a state of flux AND THERE IS NO KNOWLEDGE ABOUT THEM; ii) the Socratic definition; iii) Plato accepted his teaching but referred the problem to other entities than the sensible for this reason that the common definition could not be a definition of any sensible things, as they were always changing. Here the capitalised words are stated as part of the Heraclitean doctrine, and Plato's argument (iii) is that the object of knowledge must not change. But in M.iv we find a different account of this: i) the Idealists accepted the Heraclitean sayings that describe all things as ever passing away, iii) so that if knowledge or thought is to have an object there must be other entities apart from sensibles, FOR THERE COULD BE NO KNOWLEDGE OF THINGS IN A STATE OF FLUX. ii) But

1. This addition can be explained on the view that M.iv was intended to replace an earlier account, M.ix, where this point, that Socrates did not separate universals from particulars, is made for this reason, that the account is preceded by the criticism that the Idealists erred in making Ideas both universal and separate as particulars. It is, then, natural that Aristotle should there add that Socrates did not separate in contrast to the Idealists who did. If, then, M.iv was written to replace M.ix, it might very well keep this point concerning separation.

Socrates introduced the definition, which he did not separate. Here the capitalised words are added to Plato's argument for separation, which is simply that if knowledge is to have an object, it must be outside of the sensible world. That is, Aristotle here gives as Plato's argument for separation, not that the sensible world is always changing, but that it could not be known. But that there is no knowledge about the sensible world belongs rather to Cratylus' outlook as in A.vi, since we find in Metaphysics 1010a7-9:"Because they saw that all things in this world of nature were in movement, and that about what changes no true statement can be made, they said that, regarding that which everywhere and in every respect is changing, NOTHING COULD BE TRULY AFFIRMED." Further, the dialogue, Cratylus, confirms A.vi, that Plato's argument for Ideas was that the object of knowledge could not change whereas sensibles changed, and proves M.iv wrong in arguing that Ideas must exist because there could be no knowledge of sensibles.

Further, the order of treatment in A.vi is the natural one: first the influences on Plato, lastly his use of these influences. But in M.iv the influence of Socrates comes last, and in order to complete the account of Plato's argument before mentioning part of that argument, namely Socrates' contribution, Aristotle has to anticipate this by introducing 'objects of knowledge and thought'. Aristotle is at liberty to arrange his accounts in any way he pleases but the point is this: if M.iv is a recension of A.vi, one can understand how Aristotle, in rearranging his material, botched it by shifting part of the Heraclitean doctrine to the part dealing with Plato's argument; but how could A.vi, if it were a recension of M.iv, displace part of Plato's argument in M.iv and ascribe it to Cratylus? Which is the earlier: the passage where the sentence in question is in place, or that where this sentence is misapplied? The answer is obvious.

Finally, a comparison of A.vi and M.iv with the parallel passage in M.ix shows that M.iv is the latest. M.ix:"The reason why those who described their substances as universal combined these two characteristics in one thing, is that they did not make substances identical with sensible things. They thought that the particulars in the sensible world were in a state of Flux and none of them remained, but that the universal was apart from these and something different. And Socrates gave the impulse to this theory...." Now here it is explicitly stated that the Idealists separated, not because there was no knowledge of sensibles, as in M.iv, but because sensibles were in Flux, as in A.vi. Thus, M.iv is the account that differs from both A.vi and M.ix, and so is the one that is the recension. Hence, Cherniss is wrong, A.vi is not a later recension of M.iv, but M.iv is later than A.vi.

2. Against Cherniss that Aristotle Invented Idea-Numbers.

a) The Alleged Invention of the Elements of Ideas. Cherniss[1] takes the account of the elements of Ideas in A.vi as a compressed statement of M.vii.1081a12-17, that Ideas must be Numbers, must be derived from the elements of Number, if they are to exist at all. Since Aristotle, he says, could not understand how Ideas could exist unless composed of elements, as in 1081a12-17, he simply assumes that they were so conceived.

We have shown above that M.iv was written later than A.vi, so that M.vii, which forms an integral part of the book in which M.iv is a part, as Jaeger[2] has demonstrated, must be later than A.vi, not only in position but also in time of composition. How, then, could Aristotle make a compressed statement of this 'demonstration' in A.vi? There is an interval of 10 or more years between the composition of A.vi and of M.vii, and even if Aristotle had anticipated that 'demonstration' at the time he wrote A.vi - when he was at Assos, mark you, shortly after Plato's death and at a time when, if Jaeger is correct, he was still a Platonist - what sort of work is it that ascribes to Plato a theory which, according to Cherniss, was not only unknown to Plato but is not even hinted at by Aristotle as a compressed statement of a deduction as to the nature of Ideas; nay, more, Aristotle only 'demonstrated' that the Ideas, if they were to exist at all, had to be composed of elements, 10 or more years later, and in a portion of his work which apparently was intended to form its CONCLUSION?

But even if this could be accepted, Cherniss is still wrong. So far from 1081a12-17 being a demonstration that Ideas must have elements, it has the very opposite import, when read in its context. M.vii opens with a consideration of the possible constitution of Numbers, which Aristotle assumes have units. The question is then raised whether these units are associable, inassociable, or mixed. Firstly Aristotle considers the results if the units are all associable: in this case we have mathematical numbers and the Ideas cannot be the Numbers. This clearly assumes that the Idealists referred to posited the Ideas as Numbers. If there is any doubt about this, read the sentence which follows:"But if the Ideas are not Numbers, neither can they exist at all. For from what principles will the Ideas come? It is Number that comes from the One and the Indefinite Dyad,[3] and the principles or elements ARE SAID TO BE the principles and elements of Number...." The italicised words show that it is not Aristotle's deduction that Ideas must have elements if they are to exist but that the Idealists themselves stated that the elements

1. Aristotle's Criticism of Plato 180 note 104; Riddle of the Early Academy 58. 2. Aristotle 178-180.
3. I believe that this expression was favoured by Xenocrates; book M was aimed especially at Xenocrates; and Aristotle here has Xenocrates in mind and not Plato at all.

of Ideas are those of Number.

In any case, the whole passage shows that 1080a12-17 is not a demonstration that if Ideas are to exist they must be Numbers. It is an integral part of a dilemma PROVING THAT IDEAS CANNOT BE NUMBERS. I repeat, it proves not that Ideas must be Numbers but that they CANNOT be Numbers. For the argument is as follows:

The Ideas are either Numbers or are not Numbers;

If they are not Numbers, they cannot exist at all, for from what elements could they be composed? (1081a12-17)

If they are Numbers, their units are either associable, inassociable, or mixed;

If associable, any particular 3 is no more Man-Itself than any other 3,

If inassociable.....refuted in 1081a17-b26,

If mixed.....refuted in 1081b35-3a17.

Therefore, the Ideas can neither be Numbers (on Aristotle's assumption of Numbers of units), nor not be Numbers (on the Idealist assumption of Numbers in respect of their derivation).

Cherniss[1] has another theory about the Doctrine of Idea-Numbers. He argues that Aristotle's source for his statement that the One is the essence of Ideas is the deduction that just as the Idea's Being comes from the Idea of Being in the Sophist, so its unity comes from the Idea of One. If, then, the One is a principle of Ideas, all Ideas must be Numbers, as in 1054a4-13. Further, the name Great and Small Aristotle made up from the mention of 'the greater and smaller' in the Philebus. This hardly accords with Cherniss' thesis, for if Aristotle argued that, in order to exist, Ideas had to be derived from the elements of Number, surely he would have posited as Plato's elements the One and an indefinite dyad or the One and the Even, which really are the elements of Number, rather than the One and the Great and Small, which latter no one yet had called an element of Number. But to refute Cherniss here it will, I think, be sufficient to quote Ross,[2] that the 'greater and smaller' in the Philebus is no more prominent than the 'hotter and colder' etc., that the analysis there is of the sensible world and not of Ideas, much less of Numbers, so that Aristotle could not have derived the Great and Small from the Philebus; indeed, Physics 209b11-17 with 33-210a2 is conclusive evidence that the term was Plato's own, and what Aristotle says in the Metaphysics was derived from Plato's oral teaching and not from the dialogues, not to mention the independent evidence to this effect from Aristoxenus, Hermodorus, and Alexander. Neither could he have got the One as a formal cause from the dialogues, for the unity of each Idea is a different thing from the derivation of the Number series from the One.

1. Riddle of the Early Academy 51 and 58.
2. Plato's Theory of Ideas 147-150.

b) The Alleged Invention of Elements of Sensibles. Cherniss'[1] argument is that, because Aristotle believed that form and privation are contraries and the substrate is a tertium quid, it is the essence of his critical method to make out that his predecessors neglected privation and made form and substrate contraries. Hence, as Plato's Ideas are Being, Aristotle argued that Plato must have derived sensible existence from Not-Being, and consequently that sensibles were derived from two elements, Being (i.e. the Ideas) and Not-Being. Further, since the Idea was Absolute Being, the substrate was Absolute Not-Being, the opposite of Being, as Parmenides had shown. In this connection he cites, inter alia, Physics 191b35-2a1 and Metaphysics 1088a35-9a6.

In Physics 191b35-2a1 Cherniss has overlooked the context. Taken by itself this passage does indeed seem to imply that Plato derived Becoming from Absolute Not-Being: "They allow that a thing may come to be without qualification from Not-Being, accepting on this point the statement of Parmenides." But an examination of the context shows that Aristotle does not in fact mean that Plato erred in deriving Becoming from Not-Being, but in not drawing a distinction between Absolute and Relative Not-Being; that Aristotle does not conceive Plato as deriving sensibles from Absolute but from Relative Not-Being. For at the end of Physics I.vii Aristotle lays down that there are three principles - form, privation, and matter - of which Form = Being, privation = Absolute Not-Being, and matter = Relative Not-Being, as can be seen in 192a4-5: "Now we distinguish matter and privation, and hold that one of these, namely the matter, is Not-Being only in virtue of an attribute which it has, while the privation in its own nature is Not-Being." Hence, Aristotle distinguishes two contraries, form and privation, corresponding to Being and Absolute Not-Being, and his matter is a tertium quid, Not-Being only relatively. Bearing this in mind, let us review the context.

Aristotle explains, 191a23ff, that "those who studied science," by whom he seems to mean the Eleatics, went astray in denying that a plurality of things could exist because it was impossible for anything that comes to be to do so either from Being (because it IS already) or from Not-Being (because something must be present as a substrate). When, then, Aristotle says in 191b12ff that he is in agreement that nothing can be said without qualification to come from what is not, but maintains that a thing may come to be from Not-Being in a qualified sense, he is insisting on a substrate which shall be Relative Not-Being. The Eleatics were correct in denying that Becoming could be derived from Absolute Not-Being simply, but erred in not positing a substrate, Relative Not-Being. When, then, in 191b35-2a1 he turns to Plato, he must mean something different from what he had said

1. Aristotle's Criticism of Plato 90-94, cp. Riddle of the Early Academy 19.

about Parmenides, since he begins, "Others indeed have apprehended the nature in question, but not adequately." This nature in question is surely Relative Not-Being! Aristotle agrees with these others (no doubt Plato and his followers) that a thing may come to be from Not-Being - he could only so agree if this Not-Being, this substrate was, like his own, Relative Not-Being - but their account is inadequate in that "they think that if the substratum is one numerically, it must also have only a single potentiality, which is a very different thing."[1] For his own view is that both Absolute and Relative Not-Being are necessary in order to derive Becoming, since[2] he distinguishes matter and privation, the former as Relative, the latter as Absolute Not-Being, as said above, but "they identify their Great and Small alike with Not-Being...their triad is therefore of quite a different kind from ours." That is, Plato has three principles, according to Aristotle's way of counting - Form, Great, and Small, but as both the Great and the Small are identified, or are one numerically, with Relative Not-Being, this differs from his own form, privation, and matter, of which the former is Absolute, the latter Relative Not-Being. In a word, Plato's error lay not in deriving Becoming from Not-Being, but in overlooking privation, Absolute Not-Being, as one of his elements. Surely, then, his substrate is Relative Not-Being, and Cherniss is wrong that Aristotle deduced that Plato must have derived things from Being and Absolute Not-Being because he thought all philosophers derived Becoming from contraries and that the contrary of the Ideas as Being was Absolute Not-Being.

Cherniss is probably correct that, if Plato did not derive sensibles from elements, Aristotle would have deduced his elements to be Being and Absolute Not-Being; the very fact, then, that he reports Plato's elements as Being and Relative Not-Being, as we have shown above, indicates that this was not Aristotle's deduction, and therefore Plato must have held that sensibles were so derived. We can, I think, go further and argue that unless Plato had actually held the dyad of the Great and the Small Aristotle would not have said, "for even if one philosopher MAKES A DYAD of it, which he CALLS the Great and Small,"[3] but would simply have stated that Plato overlooked Privation, by making his other element Not-Being.

The argument from Metaphysics 1088b35-9a6 is clearer. So far from proving that Aristotle thought that Plato's sensibles had to come from Not-Being in an absolute sense, as Cherniss understands it, it quite clearly proves that multiplicity had to come from Relative Not-Being. For the quotation itself says that the Platonists thought it necessary to prove that that which is not is, FOR ONLY THUS (i.e. from a NotBeing which had been proved to be in some sense, and so was Relative Not-Being) could the things that are be

1. Physics 192a2-3. 2. Physics 192a4-5. 3. Physics 192a11-12.

composed.

Cherniss, then, has misinterpreted Aristotle. He does not say that Plato derived things from Being and Absolute Not-Being, but from Being and Relative Not-Being. If he conceived the principles of his predecessors to have been contraries, he could not have deduced that, for Plato, since the Idea was Being, the substrate of sensibles must have been Relative Not-Being, since this is not the contrary of Being, but only something different. If, then, Aristotle said that Plato's elements were Being and Relative Not-Being, it was because Plato himself had said or implied as much.

Accordingly, Cherniss' argument collapses that Aristotle misinterpreted the dialogues and so found corroboration for his fiction of a material substrate - for the substrate was in fact already there, at any rate in the Philebus and Timaeus. Cherniss thinks that because Aristotle conceived the substrate as Absolute Not-Being in his predecessors, finding Not-Being in the Sophist he took it as confirmation of his view, despite the fact that it was Relative and not Absolute Not-Being, despite the fact that it was an 'element', if it can be so-called, not in sensibles at all but in Ideas. Cherniss is right in this, that Not-Being in the Sophist is no substrate of phenomena, but it is difficult to believe that he is serious in alleging that Aristotle thought it was, and even more so in alleging that Aristotle interpreted it as Absolute Not-Being. But if Plato held a substrate, even though it does not appear in the Sophist, it is quite unnecessary to accept Cherniss' complicated chain of reasoning. He also alleges that Aristotle mistakenly found evidence of a substrate in the Receptacle of the Timaeus. But Plato did in fact hold that the Receptacle was a substrate, as I have tried to show above, and this is Space only incidentally. Finally, if Aristotle misinterpreted the Unlimited of the Philebus as a substrate, then so did Porphyry, Sextus Empiricus and Hermodorus, and what is more, most modern commentators have also done so.

I conclude, then, that Cherniss has failed to make his point that Aristotle deduced that the Ideas must have elements, that sensibles must be derived from Absolute Not-Being, and ascribed this belief to Plato, misinterpreting the dialogues to substantiate his claim. Plato actually held that Ideas and sensibles have elements, but his substrate was not Absolute Not-Being - it was Relative Not-Being, as Aristotle, when examined, can be shown to have known. It remains to turn to the last point, that by misinterpreting the dialogues Aristotle got the idea that the material element of both Ideas and sensibles was the same.

c) Aristotle's Alleged Identification of the Great and Small in Ideas with that in Sensibles. Cherniss[1] states that the identity of the Great and Small in sensibles and in Ideas is to be found in Physics 207a28-33, 203a9-10 and Metaphysics 988a10-14.[2] I do not, however, believe that Aristotle, in these places, conceived of the Great and Small as the same numerically in both Ideas and things. In 1085a9-19 Aristotle lists the Long and Short, Broad and Narrow, Deep and Shallow as 'species' of the Great and Small, from which come Magnitudes, and speaks to the same effect in 1089b10-15, where the Great and Small, and the above-mentioned Long and Short, etc., are called "many Unequals besides THE Unequal." If we compare with these references 1090b37-1a1 ("He makes spatial magnitudes out of some other Small and Great"), it seems that the Great and Small was a generic term embracing a variety of 'species'. While this term, the Great and Small, is not used in 1001b19-25, the same thing is implied by "We must inquire why and how the product will be sometimes a Number and sometimes a Magnitude, if the not-One...was the same principle in either case." When, then, Aristotle says in 988a 10-14, "And it is evident what the underlying matter is, of which the Forms ~~and~~ are predicated in the case of sensible things, and the One in the case of the Forms, viz. that this is a dyad, the Great and the Small", he may well mean one variety for sensibles and another for Ideas. And I see no reason why this should not apply in the case of the other two references also. Similarly, when Aristotle identifies the Great and Small with the Receptacle or Participant in Physics 209b11-17 with 33-210a2,[3] it is not necessary to interpret this, with Cherniss, to mean that Aristotle identifies the Ideal with the sensible substrate, but it can easily mean that by the Great and Small Aristotle here refers to that variety of it which was the sensible substrate; indeed, this seems to be implied by "Whether what participates is the Great and Small or the Matter, as he called it in writing in the Timaeus".

I maintain, then, that Cherniss is mistaken in saying that Aristotle identified the material element of Plato's Ideas with that of sensibles. Aristotle knew that these were different, but were both subsumed under the generic term, Great and Small.

d) The Argument that the Ideas could not have been Numbers. Cherniss[4] raises two arguments that the Ideas could not have been Numbers according to Aristotle's own evidence. The first is that Ideas as Numbers is contradicted by Aristotle himself in 1084a10-7, where Number is limited to 10; in 1073a14-22, where Number is unlimited; and in 1070a18-19, where ~~Numbers are limited to~~ Ideas are as many as Natural Kinds, wherefore Number could not be ~~unlimited~~ limited. But this is quite beside

1. Aristotle's Criticism of Plato 479. 2. We have dealt with Cherniss' allegation in Aristotle's Criticism of Plato 108-9 that the account in 988a10-14 is different from that in 987b18-22, and other allied matters, on pages 104-5 above. 3. See pages 278-9.
4. Riddle of Early Academy 26-29.

the point: if the Ideas are Numbers, it is because they are composed of the elemnts of Number, as Cherniss himself admits, and not because Man equals 3 or what have you. In any case, while the limitation of Number to 10 is generally accepted as Platonic, what evidence can Cherniss adduce to show that the reference to Number being unlimited was meant by Aristotle to refer to Plato, and not, for example, to Speusippus or Xenocrates? Again, the limitation of Ideas to Natural Kinds is misunderstood - Aristotle does not mean any restriction, but only that Plato posited Ideas of Natural Kinds without prejudice to there being other Ideas,[1] the reference ad loc. saying nothing about the deduction, which is Cherniss' own, that in this case Number could not be limited. Indeed, there were Ideas of Numbers, as Cherniss himself admits by taking the exclusion of the connection of the Ideal Theory with Number in M.iv to mean the exclusion of Ideas of Number.[2]

The second argument is that the criticism of the Ideas in 997b 5-13, 1040b30-1a3, and 1059a11-14, is arrant nonsense if the Ideas are Numbers, and Field[3] cites the first and last of these references with the same remark. In these places the criticism referred to amounts to this: that the Forms are in effect nothing but eternal sensibles. I have taken[4] this type of criticism to refer to the Earlier Ideas, which were not Numbers in any sense, and the recurrence of this type of criticism in M.iv and M.ix, where the Earlier Theory is dealt with, confirms this. I refer to the argument that the Forms duplicate reality in M.iv.1078b31ff and 1079a31-32:"But the same names indicate substance in this and in the Ideal world", and even more clearly in M.ix.1086b9-11:"But (he) gave separate existence to these universally predicated substances, so that it followed that universals and individuals were almost the same sort of thing." But even if Aristotle is attacking Idea-Numbers the criticisms do not make arrant nonsense/. An Idea-Number is simply an Idea composed of the elements of Number. If the Idea of Man,for example, is not simple, but is made up from elements, how does that prevent this Idea from being described as an eternal sensible, the more so since sensibles are similarly constituted from two analogous elements?

Cherniss, then, seems to me to be wrong at every turn/. In the words of Tate,[5] "If there is any defect in Cherniss' equipment, it is an undue lack of sympathy with the Aristotelian point of view. While Cherniss is content with words, Aristotle tried to read the mind of Platonism."

1. Cp. Black, Classical Review LXI.75 note 5:"ὁπόσα is not necessarily restrictive in meaning." 2. Cherniss, Aristotle's Criticism of Plato 197. 3. Classical Quarterly XVII.117.
4. See page/ 73 above. 5. Classical Review LX.32-33.

3. Against Cherniss that Aristotle Altered the Original Transition from A.v to A.vi. Cherniss[1] alleges that Aristotle invented Pythagorean Imitation in Metaphysics 987b10-14 to find an influence for the Doctrine of Idea-Numbers that he had foisted on Plato; that the account of Pythagoreanism given in the latter part of A.vi and brought into connection with Platonism at various points in A.vi is entirely an unhistorical fiction of the same type as Imitation; and that this can be demonstrated by traces of botching, there having been originally a direct transition from 987a9 to 987a32, which was clumsily recast in 987a29-31 with the insertion of 987a9-31 to establish a connection between his new interpretation of Pythagoreanism and the Idea-Numbers now ascribed to Plato.

a) Imitation. Cherniss[1] points out that μίμησις in 987b10-14 is an ἅπαξ λεγόμενον invented to supply an influence for Idea-Numbers which did not exist. I am not clear what interpretation Cherniss gave to μίμησις, but since he says, "This is the only place where Aristotle ascribes such a doctrine to the Pythagoreans, WHO ARE ELSEWHERE CONTRASTED WITH PLATO IN THIS RESPECT", citing several passages to show that Pythagorean Number was not separate, it will probably not be doing Cherniss an injustice to say that he conceives μίμησις as things being copies of Numbers, of separate Numbers.

Now while the μίμησις is, in this connection, undoubtedly an ἅπαξ λεγόμενον, the notion of things imitating Numbers is not - grant, however, that these Numbers are not separate. For example, in 985b32-33, which is not cited as a later addition, we have: "Since, then, all other things seemed in their whole nature to be MODELLED ON Numbers", the key word, ἀφωμοιῶσθαι, meaning "to have been made like", whereas μίμησις comes from μιμεῖσθαι, "to imitate, copy". Thus, μίμησις is not an invention unless 985b32-33 also is an invention. Further, I can see no necessity for Aristotle having invented μίμησις in any case, since, in the sense in which Cherniss understands it, it has nothing to do with Idea-Numbers as such, and in that sense it would more easily refer to the Earlier Ideas. Indeed, its present position in the Metaphysics would incline one to think it was in fact meant to refer to the Earlier Ideas. If these were models, of which sensible things were copies, then μίμησις would undoubtedly have been a possible influence, things imitating separate Numbers. But Cherniss is wrong in this interpretation.[2] If μίμησις is the same notion as that given in 985b32-33, it was not invented by Aristotle; if it means imitation of separate Numbers, it was indeed invented, but hardly as an alleged influence for the conception of Idea-Numbers, but as an influence for Early Ideas!

1. Aristotle's Criticism of Plato 189-198, cp. Aristotle's Criticism of Pre-Socratic Philosophy 392. 2. See pages 96-97 above.

b) The Alleged Botching. Cherniss[1] states that 987a13-28 is redundant; it is introduced by 987a11-13 which repeats 987a7-9 with a different meaning; and the ending, 987a27-28, is makeshift. Again, the transition of 987a29-31 is botched since τούτοις is made to refer to the philosophy of the Italians instead of its natural meaning, "the earlier philosophers and their successors", and γάρ does not make sense. Finally, the account of M.iv, which Cherniss takes as the original, has a parenthesis on the halting attempt of the Pythagoreans to define, which is omitted in A.vi, being excised by Aristotle, when he made the recension, as unimportant. I shall take up these points in turn.

i) That 987a13-28 is redundant. I agree with Cherniss that the passage is redundant, but not for the reason he alleges . He argues it is redundant because Aristotle inserted it in a deliberate attempt to foist on Plato a Pythagorean influence for Idea-Numbers Now, if it was inserted for this purpose, since the Ideas are Numbers because derived from the elements of Number, the sentence in 987a13-28 that deals with this is:"Infinity itself and Unity itself were the substance of things....That is why Number was the substance of all things". But this tenet had been expounded previously in 985b 24-26:"The principles of mathematics were the principles of all things....Of these principles Numbers are by nature the first", and in 986a1-2:"Since Numbers seemed to be the first things in the whole of Nature, they supposed the elements of Number to be the elements of all things," and in 986a17-21:"The elements of Number are the Even and the Odd; of these the latter is Limited, the former Unlimited; the One proceeds from both of these...AND NUMBER FROM THE ONE" The accounts, are, granted, not identical, but if Aristotle was looking for a Pythagorean precedent for Idea-Numbers, for Ideas composed of the elements of Number, he need not have added 987a13-28 at all, since in his original account we find that the elements of all things are the elements of Number, and that Numbers proceed from the One and the Unlimited or Even - for elsewhere these are identified.

But, in fact, the reason why this passage was added, for it certainly does seem to be an afterthought, appears from that very change in meaning seized upon by Cherniss. For 987a7-9 states that some posit two causes, matter and a source of movement, which is in some cases single, sometimes twofold, whereas 987a11-13 repeats this, and continues that the Pythagoreans also had two principles, but instead of these being matter and movement, they are matter and form[2]:"But on the question of essence they treated the matter too simply". Now I maintain that, since the express object of this book A is to investigate the anticipations of the four causes, and since

1. Aristotle's Criticism of Plato 192. 2. Cp. Ross, Aristotle's Metaphysics I.156 ad 987a13:"...While the others had material and efficient causes, the Pythagoreans had the material and formal."

the previous philosophers had been shown to have anticipated, in a way, Matter and the Efficient Cause, and Plato was to be shown to have had something like Matter and Form, to make the transition Aristotle inserted, perhaps as an after thought, perhaps in the rough and ready way in which lecture notes might be prepared, the halting anticipation of the Formal Cause by the Pythagoreans here. The facts, Justice as 4, etc., had already been mentioned in the previous account of Pythagoreanism, but Aristotle did not there stress this because at that point it suited him to regard Pythagorean Number as Matter in order to bring them under the general class of Pluralists. Having concluded that account, he can now, before passing on to the next class where both Matter and Form are anticipated, include as a transition the halting Pythagorean anticipation of Essence. The passage objected to, then, may have been an interpolation, but it was insetted, not to bolster up a doctrine of Idea-Numbers - for it contains nothing not already dealt with in the earlier part of A.v - but to lead up to Plato's anticipation of the Formal Cause. And this anticipation of the Formal Cause belongs quite as much to Plato's Earlier Theory of Ideas as to any later Doctrine of Idea-Numbers.

The ending, 987a27-28, may be makeshift, but it would be equally so even if it followed 987a8 as a conclusion before Plato was dealt with in A.vi, but this would hardly prove that the preceding passage was an afterthought.

ii) That the Transition, A.vi.1, is Botched. Cherniss[1] gives two reasons for this statement: τούτοις should refer to "the earlier philosophers and their successors", and γάρ makes no sense. I maintain that he is mistaken in both respects.

Τούτοις refers to the parties dealt with in the preceding passage, the alleged interpolation in fact, who are the Pythagoreans, and who are there referred to as the Italian school, just as shortly after τούτοις the philosophy of the Italians is again mentioned by name. That by "Down to the Italian school" Aristotle means the same 'so-called Pythagoreans' of A.v is shown by De Caelo 293a20-27, where we find, "The Italian philosophers known as Pythagoreans", where the Greek for 'known as' is the same as for 'so-called' - καλούμενοι.

Γὰρ has a meaning: it means that Plato had certain peculiarities distinguishing him from the Pythagoreans, whom he followed, BECAUSE (γάρ) his theory was derived originally from the influence of Cratylus and Socrates. This introduction of Ideas from these two influences caused certain differences distinguishing his philosophy from the Pythagoream, which it resembled in many other respects. For example, because he separated Ideas, he differed from the Pythagoreans in separating Numbers, which were IDEAS of Numbers.

1. Aristotle's Criticism of Plato 192.

111) The Parenthesis of M.iv. Assuming for the sake of argument that A.vi is a recension of M.iv, Aristotle would be justified in excising the parenthesis if it was redundant, I suppose. But this is just what it would be in A.vi, for the parenthesis, so far as the Pythagoreans were concerned, merely states that "they had before this treated of a few things, whose definitions - e.g. those of Opportunity, Justice, or Marriage - they connected with Numbers", and goes on to talk about Socrates' dialectical power. Now as regards the former, A.v already has all that is essential, to wit, "In Numbers they seemed to see many resemblances to the things that exist and come into being...(such and such a modification of Numbers being Justice, another being Soul and Reason, another being Opportunity)", so that a parenthesis in A.vi similar to that in M.iv would merely repeat what had already been said in A.v, at least so far as the Pythagoreans were concerned. In the case of Socrates' dialectical power, it can be shown that this is conclusive evidence that M.iv was written later than A.vi, instead of being, as Cherniss maintains, its original. Before dealing with this, however, it is worth noticing that the very fact that the connection of definitions with Numbers occurs in A.v explains not why the parenthesis was omitted in A.vi - for this was earlier that M.iv - but why it was necessary to insert it in M.iv, which was a later recension of either A.vi or M.ix. Just because some words were necessary about the history of the definition in M.iv while there was nothing to this effect in A.vi - since it had already been touched upon, so far as the Pythagoreans were concerned, in A.v - M.iv had to include the relevant details about the Pythagorean definition given in A.v in a parenthesis. Hence, so far from being evidence of the lateness of A.vi, it shows that M.iv was the later. But the point which clinches the matter is the statement about Socrates in the parenthesis.

Stenzel[1] points out that the reference to dialectical power is a hit against the Academy. Aristotle is here opposing the Academy, which attempted to distinguish between the contributions of Socrates and of Plato to philosophy by denying that Socrates had any proper doctrine, basing this on his well-known pose of Ignorance. But, says Aristotle, this is going too far - we must at least allow him to have introduced Induction and general concepts, but he grants that he could not be said to have had any dialectical power. This is ironical. The Platonists boasted that, without Ideas, Socrates could have attained only Opinion and not Knowledge. Yes, says Aristotle, Socrates tried to syllogise, but only succeeded in reaching the Essence because the wonderful dialectical method, which managed to do without Essence, and by which the Platonists boasted to have surpassed Socrates, was not yet - there was only a

1. Paulys Realencyclopädie II.111.884-5.

dialectic aimed at Essence. As the Academy would be concerned with the distinction between the Platonic and the Socratic doctrines only after Plato's death, this hit at the Academy could only have been possible when Aristotle was in contact with the Academy some time after Plato's death. Now Aristotle left Athens at Plato's death and did not return until some 10 or more years later, when he founded the Lyceum. Indeed, it implies a certain antagonism between the Lyceum and the Academy, which suits the tone of the criticism of M.iv, directed chiefly against Speusippus and Xenocrates, but not that of book A, which practically ignores Plato's successors, as Jaeger[1] has shown. Thus, this parenthesis is perfectly in place in M.iv, but would be out of place in A.vi, and its reference to Socrates is such that it shows very definitely that M.iv was written later than A.vi.

Cherniss' thesis, then, collapses at all points, and as an alternative I offer the interpretation of the relation between Plato and the philosophy of the Italians, with all that this implies, which is the subject of the present work.

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1. Aristotle 177-178, cp. 172.

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